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Journal of Research & Reviews in Social Sciences Pakistan

Journal homepage: http://journal.kinnaird.edu.pk

DEVELOPMENT OF INDIGENOUS SCALE: PERCEIVED FAMILY SPEAKING STYLE SCALE (PFSSS) FOR INDIVIDUALS WHO STUTTER

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Keywords

Family Speaking Style, Speaking Pattern, Individual Who Stutters, Stuttering

Abstract

In developmental years, a child's family and surrounding environment play important roles in shaping their communicative skills. The current study was carried out to construct an indigenous tool to assess the perceptions of an individual who stutters. Specifically, considers how an individual's family members' rate of speech and changes in family members' attitude regarding speaking ways, and frequency of conservation contributes, affects, or relates to an individual's stuttering problem. The sample comprised of 117 participants, which consisted of 99 men and 18 women with the age range of 11 – 25 years (M= 18.83; SD= 4.74). Both purposive and snowball sampling were employed for recruiting research participants from hospitals and the community. Principal Component Analysis (PCA) was performed by using orthogonal rotation (varimax) on 6 items as the factor analysis extraction technique through SPSS. Cronbach Alpha (α) reliability coefficient of Perceived Family Speaking Style Scale (PFSSS) had an acceptable internal consistency (6 items; α =. 71). Thus, it concludes that this tool, categorized as indigenous, is helpful for assessing the perceptions of individuals who stutter regarding their family members' speaking pattern. The clinician can use this tool in a combination with conversational analysis tools, which facilitates in managing speech and psychological perception of individuals who stutter regarding their family members.

1. Introduction

Speech is a basic tool for social correspondence. Relationships are built up through individuals effectively imparting their sentiments and thoughts to others. Stuttering is a disorder that influences the forward flow of speech, along with an extra impact on mental and social life (Guitar, 2006). Stuttering is an unusual elevated incidence or span of blockage in the forward series of discourse. Stuttering which appears without any prominent link of any psychological or organic trauma during childhood is known as developmental stuttering (Guitar, 2013). Developmental stuttering is the most common form; its onset is in early childhood when the children are at the stage of learning language skills. It also runs in families. This stuttering generally occurs between age ranges of 3 to 8 years (Fibiger, 2010). Since stuttering can significantly affect communication, a stuttering individual may experience difficulty communicating socially, and might consequently experience difficulty forming connections (Daniels & Gabel, 2004). There are many explanations that describe the causes of stuttering but the exact causal factors are still unknown. However, existing literature has indicated the general public views that stuttering has more psychological causes than the biological ones. Numerous variables are responsible for individual who stutters capacity to oversee and adapt to their stuttering in social circumstances. It is also noted that the majority expressed their view as stuttering is due to some emotional problem whereas other researchers mentioned stuttering is due to some psychosocial and social identity issues (De Britto, Rossi &Van Borsel, 2008). Among these factors is the role of family. The family and another significant supportive group may help or defer the capacity of stutters to adapt to and effectively deal with their stuttering (Yaruss & Quesal, 2006). Family can be viewed as an encouraging group of people for individuals who stutter, and also plays vital role in successful stuttering management. Research has indicated that the communicative behaviors of mothers play an important role in the speaking rate of children who stutter (Kelly, 1995). Moreover, it has been seen that other individuals in the environment including family members had a significant effect on the development of people who stutter (Kelly, 1995). So, as to precisely and effectively include family in the treatment of stuttering, the therapists require comprehending the encounters of the family of PWS. It has been observed that very few studies have investigated the speaking environment that people with stuttering have had with their families. Hence, more research is vital so as to completely comprehend the speaking style that PWS have had with their families. Nippold and Rudzinski (1995) proposed that one of the causes of stuttering in children could be parental speech patterns. Recently there is strong evidence that suggests that almost 50% of all the children with stuttering have a family member who stutters. The probability of having a child, who stutters, instead of just normal dysfluencies, tends to increase when that family member continues to stutter (Guitar & Conture, 2007). It was seen that stuttering children's mothers often used more

commands and questions as compared to mothers of non-stutters (Langlois, Hanrahan & Inouye, 1986). Stephenson-Opsal and Ratner (1988) also reported that, the decrease in boys' stuttering, enhanced their rate of own speech rates, this reflects that stuttering children are not mimicking their mother's slowed rate. Scholars are not sure in which manner the slow' rate of mother speech is affecting the fluency of boys. However, a significant inverse relationship was found between the rate of maternal speech and the speech rate of the child; this indicates that if the mother speaks fast, their child tends to speak slower. Previous studies explored the verbal interaction of parents, but they have not established clearly that hasty parental speech rates worsen stuttering in children nor do they create decisive evidence of a difference in speech rate between mothers of stuttering children and mothers of fluent children (Kloth, Janssen, Kraaimaat & Brutten, 1995; Stephenson-Opsal & Ratner, 1988). Existing clinical evidence and theoretical background indicated that parents' linguistic behaviors, paralinguistic behavioral, attitude, and communication style showed significant connection in the development and maintenance of stuttering problems in children. It is also observed that the success rate of intervention with children to manage stuttering in an effective manner largely depends upon their parental behavior along with their supportive nature (Peters & Guitar, 1991).

1.1 Objective and Rationale of the Study

In previous literature, it was observed that most parents' speaking behavior were assessed while ignoring the other important family members speaking attitude with an individuals who stutter and also never assesses individual's perceptions about their family members speaking pattern (Rommel, Hage, Kalehne & Johannsen, 1999). There was much focus on only assessing parents rate and complexity of their speech through conversational analysis while ignoring the fact that how their child perceives their speed by comparing it with their speech rate (Kloth, Janssen, Kraaimaat & Brutten, 1995; Peters & Guitar, 1991). Not a signal assessment tool available that measure psychological component related to the speaking attitude and speaking pattern of family members which has much influence on an individual's speaking ability facing the stuttering problem. This indigenous tool assesses the perception of individuals who stutter about his/her family members' speech pattern including father, mother, and other significant family members' who are living with an individual. It also measures the change in family members' attitudes in terms of ways of speaking and frequency of conversation due to an individual stuttering problem. It was suggested, in the light of previous research that by using indigenous tool clinician or researchers can assess a person's perception about their parent's speech that influence their speech rate and other linguistic behaviors. In Pakistani culture, other family members along with the parents play a significant role in the speaking behavior of an individual, especially during childhood. Thus, keeping in view the importance of role of the family speech style, the current study aims to

construct an indigenous tool on the basis of importance and lack of standardized tools available on the importance of the roles of a family's speaking style.

2. Materials and Methods

To fulfil the gap, which present in the existing literature, a total six items scale was constructed which particularly targets the desired variable such as "Perceived Family Speaking Style (PFSSS)" for an individuals who stutter. All items had dichotomous responses and were directly scored with no reverse scoring. Before data collection, all constructed items were reviewed by two relevant experts including a speech pathologist and a clinical psychologist. Items were also reviewed by three individuals who stutter. All gave their positive feedback and no major changes were suggested. After their review, data collection proceeded. After completion of data collection, factor analysis was conducted in order to assess a possible number of factors and items in each factor of this scale. Results of factor analysis showed two factors which include all items with high factor loadings and none of the items was excluded. Both factors were retained in the final version of the scale. On the basis of factor analysis, this scale consisted of two subscales named as Perceived Family Rate of Speech and Perceived Family Attitude on Speech Issue. Perceived Family Rate of Speech subscale consisted of three items. An example item was *"What is your family member's (living with you) rate of speech?"* Scores of this subscale were obtained by summing up the score of each item. The score ranges from 0 – 3. The interpretation of the scores suggests that the higher the score means family members have a problematic rate of speech such as either too slow or too fast as perceived by individuals who stutter. In the current study, the obtained score range on this subscale was also 0 – 3 having an acceptable internal consistency (α = .77). The second subscale, Perceived Family Attitude on Speech Issue, was also comprised of three items. An example item was *"Did your family member change his/her way of speaking with you due to your stuttering problem?"* Its scores are also obtained by summing up the score of each item and the score ranges from 0 – 3. The interpretation of the scores suggests that the higher the score means family members markedly changes their way of speaking due to stuttering problem of an individual. In the current study, the obtained score range on this subscale was 0 – 3 with an acceptable internal consistency (α = .72). This scale also gave one composite score by adding up the sum scores of both subscales which were collectively termed as Perceived Family Speaking Style Scale score. The maximum score ranges from 0 – 6, in the current study the obtained score also falls within the range of 0 – 6 with an acceptable internal consistency (α = .71).

2.1 Procedure

Firstly, formal approval was sought from university departmental authorities to conduct research. Then competent authorities were approached and formal permission was sought for recruiting research participants from academic institutions, hospitals, and the community. The researcher devised a detailed information sheet, having information

about the nature and purpose of the current research was given to the research participants. A pilot study was conducted on 10 participants in order to assess research logistics. During piloting, no major amendments were found. The majority of the sample was collected from the community. Total 117 participants fulfilled the research protocol which consisted of 99 men and 18 women with the age range of 11 – 25 years (*M*= 18.83; *SD*= 4.74). Research was conducted by following all ethical guidelines according to the American Psychological Association (APA, 2013).

3. Results

Perceived Family Speaking Style Scale (PFSSS) had an acceptable internal consistency (6 items; α =. 71). In the current study, Exploratory Factor Analysis (EFA), a principal component analysis (PCA) was performed by using orthogonal rotation (varimax) on six items as the factor analysis extraction technique. As shown in Table 1, six items were analyzed by using principal component analysis (PCA) with orthogonal rotation (varimax). The Kaiser- Meyer-Olkin measure verified the sampling adequacy for the analysis, KMO = .67. All KMO values for individual items were > .57, which is above the acceptable limit of .5. Bartlett's test of sphericity χ^2 (15) = 194.04, p < .001, indicated that correlations between items were sufficiently large for PCA. Two components had eigenvalues over Kaiser's criterion of 1 by fixing suppression < .3 whereas no numbers of the component were fixed. Hence in combination, both components explained 67.8 % of the variance. The scree plot showed inflections that would justify retaining both components (See Figure 1). All six items were retained in PFSS scale which is explained by the two factors as shown in Table 1, which indicates that the three items were grouped in factor 1 represent as "Perceived Family Rate of Speech" whereas the other three items cluster together in factor 2 termed as "Perceived Family Attitude on Speech Issue". The indigenous scale was named as "Perceived Family Speaking Style Scale (PFSSS)". Factor 1, "perceived family rate of speech" explained 41.38 % of variance whereas, Factor 2, "perceived family attitude on speech issue" explained 26.41 % variance. The total explained variance of both factors was 67.80 %.

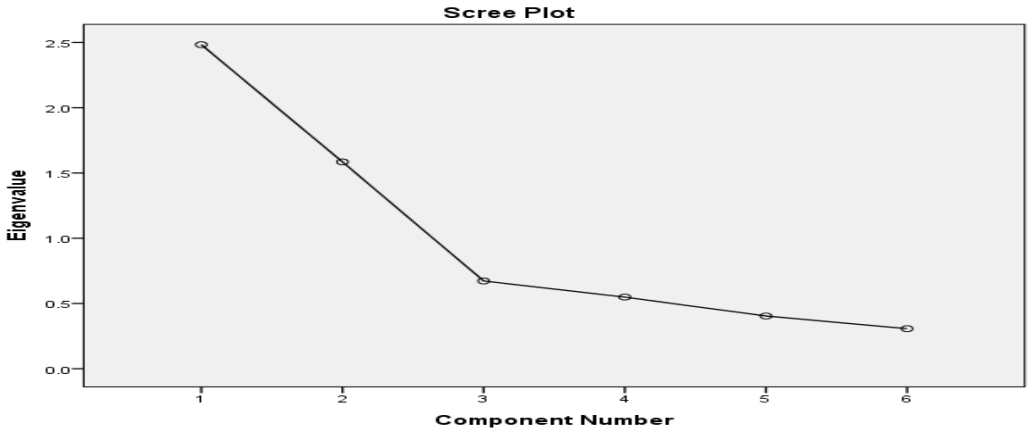

Figure 1: Scree plot showing two-factor solution with eigenvalues greater than 1

Table 1: Factor Loadings and Communalities Based on a Principal Components Analysis on 6 Items of Perceived Family Speaking Style Scale (N =117)

Sr No.	Items Description	Factor 1 Perceived Family Rate of Speech	Factor 2 Perceived Family Attitude on Speech Issue	Communalities
1.	Family members' rate of speaking	.88		.77
2.	Mother's rate of speaking	.83		.71
3.	Father's rate of speaking	.77		.60
4.	Any change in family members' ways of speaking with you due to stuttering problem		.88	.77
5.	Any change in family members' frequency of speaking with you after your stuttering?		.81	.67
6.	Whether parents press you to speak fluently		.70	.51
	Eigenvalues	2.48	1.58	
	% of Variance	41.38	26.41	
	Total Variance		67.79%	

Note. Factor loadings < .3 are suppressed.

Table 2 indicate correlation matrix of all 6 items of the scale.

Table 2: Showing Correlation Matrix for the 6 Items PFSSS

		1	2	3	4	5	6
1.	Father's rate of speaking	1.00	.47***	.52***	.18*	.11	.16*
2.	Mother's rate of speaking	.47***	1.00	.64***	.17*	.17*	.21**
3.	Family members' rate of speaking	.52***	.64***	1.00	.16*	.02	.14
4.	Whether parents press you to speak fluently	.18*	.17*	.16*	1.00	.46***	.35***
5.	Any change in family members' ways of speaking with you due to stuttering problem	.11	.17*	.02	.46***	1.00	.60***
6.	Any change in family members' frequency of speaking with you after your stuttering?	.16*	.21**	.14	.35***	.60***	1.00

Note. df= 15 , *p<0.05,**p<0.001,***p<0.001

Reliability analysis was conducted to assess scale reliability. Table 3 indicated that the Cronbach Alpha (α) reliability coefficient of scale and its subscales had acceptable internal consistency. Scores on PFSSS were non-normally disturbed, with skewness of 1.06 (SE = .22) and kurtosis of .42 (SE = .44) which revealed that scores were piled up on the left side with the pointy and heavy-tailed distribution. Construct and content validity was also established.

Table 3: Showing Descriptive Statistics for Perceived Family Speaking Style Scale and its Subscale (N=117)

Sr No.		No. of items	*M (SD)*	Skewness	Kurtosis	α
1.	Subscale - Perceived Family Rate of Speech (PFRSS)	3	.71 *(1.05)*	1.21	.03	.77
2.	Subscale - Perceived Family Attitude on Speech Issue (PFASIS)	3	.72 *(1.03)*	1.14	-.04	.72
3.	Perceived Family Speaking Style Scale (PFSSS)	6	1.44 *(1.63)*	1.06	.42	.71

Note. M = Mean, *SD* = Standard Deviation

4. Discussion

Cronbach Alpha (α) reliability coefficient of Perceived Family Speaking Style Scale (PFSSS) and its subscales demonstrated acceptable internal consistency. Exploratory Factor Analysis (EFA) was done using orthogonal rotation (varimax) by analyzing data collected from 117 research participants to run PCA. In the final version, six items were retained in PFSS scale which comprised of two sub factors i.e., Perceived Family Rate of Speech, it showed speaking rate, which include father's rate of speaking, mother's rate of speaking, and family members' rate of speaking; whereas the other three items in the second factor which are identified as Perceived Family Attitude on Speech Issue. This showed family members change their way of speaking, their frequency of speaking with an individual due to his/her stuttering problem, and parents ever stressed an individual to speak fluently. Existing clinical evidence and theoretical background also indicated that parents' linguistic behaviors, paralinguistic behaviors, attitude, and communication style showed significant connection in the development and maintenance of stuttering problems in children (Peters & Guitar, 1991). There are several reasons which parents, especially mothers, to mostly speak faster with their children who stutter, such as, they thought that their child may need more prompts during conversations to maintain fluency, or they thought that by asking their child to speak fast may help them in increasing their speed and fluency rate. However, these parental behaviors had adverse influence on their children who stutter, that is the child exert more effort to maintain fluency which cause internal discomfort, physical tension, nervousness and

anxiety both in children and parents (Ali, Mehdi, Seif& Hassan, 2008). The present scale assess perception of an individuals who stutter about his/her family members rate of speech including father, mother and other significant family members who are living with an individual as well as family members changes in attitude in term of ways of speaking, frequency of conservation etc due to an individual stuttering problem. Kloth, Janssen, Kraaimaat and Brutten (1995) developed a prospective study and found out that children were considered at risk for developing a stuttering problem if at least one of their parents was a diagnosed stutterer. Previous research has evident that the stutterers who have family history of stuttering are slower and have variability in their fluent speech (Andrews & Harris, 1964). Further, the mothers of children who persist stuttering as compared to the mother of children who recover naturally use more complex syntax and large number of different words while conversing with their children (Rommel, Hage, Kalehne & Johannsen, 1999). Similarly, the Diagnostic Theory (Johnson, 1942) also identified that parents of children with stuttering wrongly perceive the normal dysfluency as stuttering. Due to parent's reactions to such dysfluencies, children struggle and attempt to avoid, stopping normal dysfluency which ultimately lead to occurrence of stuttering.

4.1 Implication of the Study

Hence, this indigenous scale can be used in combination with other assessment measures for assessing parents' speech behaviors. This will help in assessing the discrepancy between individuals who stutter their own perception and their family members' speaking styles in reality. Furthermore, the tool can help the clinicians in making the decision to involve the family members in the stuttering therapy program for successful outcomes which not only enhance a person's ability to manage his/her own stuttering in an effective manner but also experience positive changes in the relationship with their family members. However, a limitation of the study is that confirmatory factor analysis (CFA) was not conducted so it is suggested to conduct CFA on this scale after implementing it on a new set of populations.

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