



Original Article

Social Phobia in Persian Adults with Stuttering

Ahmad Poormohammad^{1,2}, Zahra Ghayoumi-Anaraki^{3*}, Maryam Faham⁴, Davood Sobhani-Rad³

¹Kerman Neuroscience research center, Kerman University of medical sciences, Kerman, Iran

²Ibn Sina Psychiatric Hospital, Mashhad University of Medical Sciences, Mashhad, Iran

³Department of speech therapy, School of Paramedical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran

⁴Department of Speech and Language Pathology, Shiraz University of Medical Sciences, Shiraz, Iran

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ABSTRACT

Background: Stuttering is a communication disorder. It is expected that stuttering may have negative impact on individuals' mental and emotional health, which may affect their quality of life. Therefore, this paper aims to study components of social phobia inventory in Persian adults with stuttering and compare the likelihood (odds) of social phobia in the stuttering group to that in the control group.

Methods: Using social phobia inventory, this case-control study compared social phobia in 33 adults with stuttering and 33 age-gender-education matched subjects with fluent speech. All the participants were 18 years or above.

Results: Independent t-test showed that the total score of the social phobia inventory. Its fear component has significant statistical differences between group of adults with and without stuttering. Moreover, the adults with stuttering have over two times more social phobia symptoms than that in ones who don't.

Conclusion: Our results suggest that social phobia should be considered in therapy programs for adults with stuttering. In addition to restructuring speech, a part of the treatment program should address people's social phobia, especially their feeling of fear, in order to curtail some of the negative consequences associated with stuttering.

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Introduction

Stuttering is a communication disorder with an estimated prevalence of around 1% [1, 2], which can be identified by symptoms such as repeating words and syllables, prolongations of sounds or obstructions in the movement of specific speech organs during pronunciation of some sounds [3]. The occurrence of any abnormal changes in speech components or the creation of deviation in their normal process disrupts the efficiency of speech. Consequently, this makes communication difficult and ineffective [4]. Therefore, stuttering is expected to have potential negative effects on individuals' mental

and emotional health [5]. In fact, it can be stated that stuttering is a complicated disorder which is effective on psychological characteristics. These effects result in the creation of states such as low self-esteem, failure, and fear of speech situations [6, 7]. Guitar believes that adults with stuttering (AWS) are those with high levels of anxiety in terms of personality types [8]. Stuttering deteriorates when AWS speak with strangers or those individuals who are super-ordinate in their viewpoint [9]. As a result, AWS try to avoid speaking situations to prevent experiencing anxiety and fear.

Empirical studies conducted on AWS have mostly supported a positive relationship between anxiety and stuttering [9-11]. Furthermore, a positive correlation has been reported between stuttering severity and anxiety level [11, 12]. However, results of previous studies have not shown that individuals who stutter are significantly

*Corresponding author: Zahra Ghayoumi-Anaraki, Department of speech therapy, School of Paramedical Sciences, Mashhad University of Medical Sciences, Mashhad, Iran. Tel: +98 51 38846715

E-mail: ghayoumiz@mums.ac.ir

more anxious than speakers with normal fluency [13].

Mostly, fear and anxiety (which AWS experience) originate from negative evaluations, such as being ridiculed by others when stuttering. In other words, AWS may experience speech anxiety or social anxiety [14, 15].

Social phobia is one of the most commonly experienced anxiety disorders [16] with approximate lifetime prevalence of 12% in the general community of United States [17]. Social phobia is identified by symptoms such as severe fear of negative judgment and humiliation. There is also a tendency to avoid particular social situations in which individuals have had unpleasant experiences [18].

Kraaimaat et al. considered social phobia evaluation as an important part of stuttering evaluation. They reported that about half of 89 stuttering subjects, based on a social discomfort scale, fall within the range of highly socially anxious patients [10]. Social phobia is composed of multiple components, such as fear, social avoidance, and physiological symptoms. However, it is not clear yet as to which organs are affected in individuals who suffer from this disorder [19].

Stein and others demonstrated that 44% of individuals seeking treatment for stuttering warranted a co-morbid diagnosis of social phobia [20]. Menzies and colleagues investigated social phobia in 30 AWS and concluded that 60% of their samples met DSM criteria [21].

There are a group of studies aiming to track the prevalence and also the clinical features of social phobia in different countries in relation to variations in cultural, ethical, and contextual components of each community. The prevalence of social phobia in Iranian population is studied by Mohammadi and colleagues. Their results indicated lower prevalence of social phobia in normal population in Iran [22].

Kakooe and colleagues studied social phobia in adults with stuttering and reported that 26% of them suffer from social phobia [23]. However, the mentioned study did not consider any control group. Hoseininejad et al. reported that social phobia is significantly different from the concept of fluent speakers and those who stutter [24]. But they did not report how strongly the presence of social phobia is associated with stuttering.

The prevalence and expression of social phobia depend on the particular culture. The fear of negative evaluation by other people defines social phobia/anxiety disorder. According to the social norms and role-expectations of different societies/cultures vary. Therefore, social phobia/ anxiety disorder is culture dependent [25].

However, there is a lack of research on social phobia inventory in Persian speaking AWS. The aim of the present study is to study components of social phobia inventory including fear, social avoidance behavior, and physiological problems in Persian adults with stuttering and calculate the ratio of the likelihood (odds) of social phobia occurring in stuttering group to that in the control group.

Methods

Participants

The sample size of this case-control study included 33

fluent speaking participants and 33 adults with stuttering (based on SSI-4, 14 individuals with very mild and mild, 7 individuals with moderate, and 12 individuals with severe and very severe stuttering). The mean (SD) age of the control and study groups were 28.18 (4.05) and 27.15 (3.62) years, respectively. Note that the female to male ratio was 1:3.5. This was in accordance with the epidemiological studies, which indicate that such ratio varies from 1:2 to 1:4 [26].

In the stuttering group/ control group, there were 9/ 23 subjects with high school, 19/ 6 subjects having bachelor degree, and 5/ 5 with master degree. These rates in control group were 23, 6, and 5, respectively.

Based on our exclusion criteria, participants with other speech or language disorders, visual and hearing problems (that cannot be eliminated by hearing and visual aids), neurological or psychological disorders other than social phobia, and bilingualism were not involved in this study. These criteria were confirmed by a questionnaire answered by the participants.

The criteria for diagnosing stuttering included individuals' self-report, speech-language pathologist diagnosis, and analysis by SSI4. Participants in the control group were matched with individuals in the AWS group in terms of age, gender, and education.

The study was approved by the Mashhad University of Medical Sciences Ethics Committee and written informed consent was obtained from the participants.

Materials

Measures of Social Phobia

In the present study, the Social Phobia Inventory (SPIN) was used for screening social phobia in participants. SPIN, developed by Conner et al., was designed to screen social phobia. This questionnaire is a 17-item self-report scale, including three subscales of *fear* (six items), *avoidance* (seven items), and *physiological problems* (four items) [27]. Validity and reliability of this inventory was confirmed by Rezaei Dogahneh for Iranian subjects. Here, a cut-off score of 29 obtained balanced sensitivity of 0.96 and 1-specificity of 0.087 [28].

Measurement of Stuttering Severity

To measure severity of stuttering, the Stuttering Severity Instrument - Fourth Edition (SSI-4) was used, which is a reliable and valid norm-referenced assessment tool [29]. SSI-4 measures stuttering severity in both children and adults in four areas of speech behavior, including (1) frequency, (2) duration, (3) physical concomitants and (4) naturalness [29]. The reliability of Persian version of this inventory was confirmed by Tahmasebi et al. Inter-rater reliability for each parameter was 0.93 to 0.98 and intra-rater reliability for each parameter was 0.85 to 0.98 [30].

Procedure

Individuals with stuttering, referring to speech therapy centers in Mashhad University of Medical Science (MUMS), were asked to participate in the present study. Purposive sampling method was used in this present work. After considering inclusion and exclusion criteria,

individuals having the required criteria were incorporated in the study and signed the consent form. Stuttering severity of participants who stutter was determined using SSI-4, performed by a speech therapist. In the next step, each participant filled in a Social Phobia Inventory form.

Data Analysis

In the current study, obtained data were analyzed by SPSS version 16.0. Kolmogorov-Smirnov test was applied to determine the normal distribution of scores and independent t-test was performed to compare social phobia between control and AWS groups. According to SPIN’s cut-off point, odds ratio were also used to investigate social phobia differences between the two groups.

Results

In present study, we investigated social phobia inventory in Persian AWS and fluent speakers as control group. Table 1 represents the mean and standard deviations of components’ score in SPIN for each group.

Comparing SPIN between AWS participants and control group indicated that the total score of the social phobia inventory and its fear component were significantly different among groups ($P<0.05$), as shown in Table 2. The odds of an AWS having increased social phobia symptoms was over two times than that among fluent speakers (odds ratio=2.73, 95% confidence interval, 0.99 to 7.37).

Discussion

The present study was designed to define whether social phobia is the comorbidity of stuttering disorder. The obtained results indicated that AWS differ from control group as far as the social phobia evaluation was concerned. The adults with stuttering also had 2-fold increased odds of having social phobia, as compared to the fluent subjects.

Differences in the total score of SPIN between AWS and control participants with fluent speech are in agreement

with other studies [10, 15, 20, 31, 32]. Stuttering may cause some limitations in the abilities of an individual, especially in participating in everyday activities, causing problems in performing routine chores at workplaces [6, 33]. Since stuttering and its related experiences become chronic they might lead to anxiety and other mental damages [34]. Furthermore, AWS declare their pain, sorrow, and embarrassment, which expose them to negative emotional responses. As a result, AWS tend to develop a range of psychological disorders and experience high levels of anxiety [6, 7]. This does not necessarily mean that stuttering and social phobia occur together. However, it still could justify many shared properties of these two disorders, and increases chance of stuttering with environmental stressors. It is also important to know that such a comorbidity make speech therapy more complicated, posing problems in achieving fluent speech [2, 7].

Reviewing published reports on stuttering and social phobia indicated that 50%, 46%, and 60% of AWS met the criteria of social phobia [10, 31, and 2]. According to our results, 66.4% of stuttering participants met the considered criteria for social phobia. Differences in social anxiety found that East Asian participants report higher social anxiety than Western Europeans [35]. The findings of the current study confirm this assertion.

Cultures vary in the norms and values that guide social behavior and upon which social evaluation is based. Factors contributing to cultural differences in social anxiety include individualism, collectivism, perception of social norms, independent and interdependent self-construal, and gender roles [25].

Our results show that adults with stuttering had 2-fold increased odds of having social phobia, as compared to the control group. Instead, the findings of Iverach et al. showed, as compared to matched controls, that the stuttering group had 6 to 7 fold increased chances of anxiety disorder [36]. They also had 16 to 34 fold increased chances of social phobia, and four-fold increased chances of generalized anxiety disorder. This could be supported by a number of studies that investigated the personality of AWS, and reported

Table 1: Mean (M) and Standard Deviation (SD) of scores related to each component of the Social Phobia Inventory for adults with stuttering and fluent adults.

Group	Control		Case	
	mean±SD	N*	mean±SD	N
Fear	9.57±2.95	33	13.84±6.13	33
Social avoidance	12.72±4.80	33	15.45±6.51	33
Physiological symptoms	7.78±2.50	33	9.27±3.69	33
Total score for the SPIN	30.09±7.75	33	38.57±15.15	33

*N: Number

Table 2: Comparing Social Phobia Inventory between Adults with stuttering and fluent adults.

	F	T	df	P	CI
Fear	19.53	3.60	64	0.001*	1.88-6.66
Social avoidance	4.47	1.93	64	0.057	-0.93-5.54
Physiological symptoms	4.96	1.91	64	0.061	-0.72-3.04
Total score for the SPIN	11.90	2.86	64	0.006*	2.52-14.44

*Significant at $P<0.05$

higher degree of anxiety and vulnerability in AWS in comparison with participants with fluent speech [37, 38].

Possible explanations for such variation could be differences in applied assessment tools, severity of stuttering or cultural background. It should also be noticed that individuals who participated in our study had mostly mild and moderate stuttering severity, whereas the above mentioned study didn't report the severity of stuttering.

Our results revealed that among the components of SPIN—fear, social avoidance, and physiological symptoms—just the score of fear was significantly different between AWS and normal adult participants. Fear might be the result of getting outcast from society and same-age group or being ignored by them. The AWS group might experience these situations more due to their non-fluent speech [31].

A number of studies have indicated that AWS have wrong ideas regarding stuttering [39, 40]. Such negative beliefs not only increase with age [8, 41], but also play critical roles in creating fear in AWS, particularly fear of being evaluated negatively. This could explain reports that showed AWS experience more fear of being evaluated by others than those with fluent speech [15, 31, 36]. Another reason for fear in AWS might be based on physiological changes, as it has been proved that vasoconstriction might happen exactly before the moment of stuttering. Electroencephalography (EEG) studies carried out on stutterers' brain revealed a reduction of alpha wave over the right hemisphere [42]. In a similar study, when control participants and males with stuttering were exposed to speech and nonlinguistic stimuli, AWS showed significantly less alpha in their right hemisphere for both verbal and nonverbal stimuli [43]. Finally, there is no evidence indicating children with stuttering have temperament or genetic factors triggering anxiety. Therefore, it can be concluded that events of life often signify a causal role in the onset of phobias that are inherently related to some particular objects or events [44]. Such differences might be due to neural learning through adulthood. For instance, it might be possible that affected children were exposed to various negative stimuli, which made them more phobic in adulthood, the age in which social phobia is more common in general population [45]. Nevertheless, Lowe et al. reported no difference between AWS and control participants in the degree of fear from being negatively evaluated [46]. This might be due to application of different evaluation tools.

Adults with stuttering experience potentially increased rate of social phobia. This emphasizes the role of strategies for developing anxiolytic treatment on these individuals. In these treatments, different aspects of stuttering should be considered more in details [47].

Although treatments practiced about stuttering may also reduce anxiety, the standard speech treatment for stuttering is considered as having negligible impact on social phobia and fears [21]. Therefore, including psychological assessment/ treatment into standard speech treatment is required to address the social phobia and fears experienced by AWS.

It is to be noted that the number of participants was quite small and they were not selected randomly, which might be considered as a limitation and the results should be interpreted cautiously. It is also recommended to investigate the presence and comorbidity of social phobia with stuttering in children and young adults with stuttering. Moreover, before and after speech therapy in a period of time should also be investigated in order to study about the development and maintenance of social phobia along with progression in stuttering.

Conclusion

Results of the present study indicated higher degrees of social phobia (social anxiety), particularly the component of fear, in Persian speaking AWS in comparison to their peers with fluent speech. Therefore, it is necessary to consider a part of the therapy programs to address people's social anxiety, especially their fear-feeling to curtail some of the negative consequences associated with stuttering and, therefore, achieve comprehensive and successful therapy.

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