Correlation Between Stuttering Severity and Social Phobia in an Egyptian Stuttering Sample

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Original Article

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ABSTRACT

Objective: The objective of this study was to correlate between the severity of stuttering and social phobia in an Egyptian stuttering sample for a better therapeutic plan.

Patients and Methods: Stuttering severity index-Arabic version (ASSI) and the Brief Social Phobia Scale (BSPS) were applied on 33 Egyptian sample who stutter with age range from15-23 years old, 14 subjects were adolescents and 19 were adults. Twenty-three were males and ten females. The sample included3 with very mild stuttering, 3 mild stuttering,10 moderate stuttering, 12 severe stuttering and 5 very severe stuttering according to the stuttering severity index-Arabic version (ASSI).

Results: The Pearson's Correlation test revealed a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the whole sample, *p value*= 0.000, *p value*=0.001, *p value*=0.001respectively. As well as there was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adolescent's sample, *p value*= 0.003, *p value*=0.010, *p value*=0.004 respectively.

There was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adult's sample, *p value*= 0.013, *p value*=0.042, *p value*=0.078 respectively.

Conclusion: These findings provide a strong correlation between fear, avoidance, physical symptoms, and stuttering severity in the whole sample. Accordingly, such data could assist phoniatricians, speech-language pathologists and psychiatrists for a better therapeutic intervention.

Key Words: Fear, social phobia, stuttering.

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INTRODUCTION

Stuttering, also known as childhood onset fluency disorder (APA, 2013), is considered as a neuro-developmental disease occurs when the brain networks for language, speech and emotional processes are expeditiously growing[1].

Disfluencies, an involuntary disruption in the usual flow of speech, are a symptom of stuttering. It's helpful to categorize developmental stuttering symptoms as stuttering-like disfluencies (SLDs) and distinguish them from other disfluencies (e.g., um and ah..., phrase modifications and corrections[2].

Stuttering is a type of speech impairment in which the number and intensity of repetitions (sounds, syllables, part-words, entire words, phrases), pauses, and prolongations differ from those of ordinarily fluent people. The onset normally happens about the same time as language skills are growing, and it is usually gradual[3].

Many hypotheses of stuttering include anxiety and emotional reactions, such as the idea that people who stutter suffer from emotional delicate temperament. The viable link among stuttering and various or personality/ temperament qualities was examined as well as evaluated, highlighting on temporal relationships (i.e., what appears first). When compared to toddlers who do not stutter, Preschoolers that stutter (as a group) do not demonstrate any propensity toward shyness or social anxiety as a temperamental trait[4].

Reduced social anxiety leads to considerable improvements in speech fluency in persons who stutter. There is no link between the intensity of stuttering's motor symptoms and temperamental qualities, according to previous studies. It is claimed that stuttering situational

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unpredictability, which is linked to social complexity, is the result of social cognition interference rather than the feelings of social anxiety[4].

Social phobia, also known as social anxiety disorder, is a critical and debilitating mental illness condition which develops prior to or throughout puberty, has a long-term course, and is linked to severe deterioration in social and occupational functioning, as well as a lower quality of life[5]. Symptoms of social phobia appear in a large number of students, or existing symptoms worsen[6]. During this time, pupils put in the effort to be acknowledged by others as a self-governing individual and to prove themselves[7,8].

Our study was done to examine the psychological status of the stutterers especially anxiety and social phobias which can lead to functional impairment and poorer quality of life.

To our knowledge most studies were conducted on children &adult population, yet our study was examining both adults and adolescents, who are a very important age group.

OBJECTIVES

The study's aim was to correlate between the severity of stuttering and social phobia in an Egyptian stuttering sample for a better therapeutic plan.

PATIENTS & METHODS

A total of 33 of (Egyptian sample) were diagnosed with stuttering, who were selected from the outpatient clinic of the special needs center in the Faculty of Postgraduate childhood studies and the outpatient clinic of Okasha Institute of Psychiatry- Ain Shams University (n = 33; 23 males (69.7%), 10 females (30.3%)). Their age ranged between 15 and 23 years with mean ± SD 18.45 ±2.32 years. The following were applied on each participant; Personal, family, and previous medical history are all discussed throughout the patient interview. Stuttering's history: when it began, how it progressed, and how long it lasted. The circumstances that aggravate or improve their speaking. For statistical analysis, the stuttering assessment data were reported as follows: The severity degree of stuttering: very mild, mild, moderate, severe, and very severe according to the Arabic stuttering severity instrument (SSI)[9].

Regarding the social phobia, was assessed by The Brief Social Phobia Scale (BSPS). The participants were asked to rate the level of their fear and avoidance in seven different situations. Severity was evaluated according to the following categories which were scored from 0-4: 0= never, 1=rare, 2=sometimes,3= frequent, 4=always. In addition, four questions to test the autonomic symptoms the individual may experience during social situations, resulting is five categories of response 0= none, 1=mild, 2=moderate,3= severe, 4=extreme. Regarding the avoidance and fear scales, the range is 0-28 each while the physiological symptoms the range is 0-16[10].

Data Collection

Data Management and Analysis

Statistical package for Social Science was utilized to edit, code, tabulate, and upload the acquired data to a computer (SPSS 25). Data was supplied, and appropriate analysis was performed for each parameter based on the type of data gathered.

i. Descriptive statistics:

1. For numerical data, the mean, standard deviation (SD), and range are used.
2. Non-numerical data frequency and proportion

ii. Analytical statistics:

1. Linear by linear association test was used to examine the relationship between two qualitative variables at least one of them is ordinal
2. Pearson's method of correlation analysis: to see how powerful the association between two quantitative variables is. The correlation coefficient, formally "r," determines the size (magnitude) and direction (positive or negative) of a linear relationship between two variables.

- A correlation of r= 0-0.19 is very weak.
- r=0.2-0.39 indicates a weak correlation; r=0.40-0.59 indicates a moderate correlation: r=0.6-0.79 indicates a high correlation; rs = 0.8-1 indicates a very strong association

RESULTS

The current study included 33 participants more than one half of the participants were males (69.7%) and 30.3% females (Table 1). All participants were within average mental abilities according to Stanford-Binet Intelligence Scale- Fifth Edition (SB5) with mean± SD101.48±7.36. Including 14 adolescents and 19 adult stutterers (Table 2).

Categorial results of the Stuttering severity index-Arabic version (ASSI) of all participants where the data recorded 9.1% were very mild stutterers, 9.1% mild stutterers, 30.3% moderate stutterers, 36.4% severe stutterers and 15.2% very severe stutterers (Table 3).

According to the BSPS scale including fear, avoidance and physical symptoms as well as the ASSI total score, fear range 5-26 with mean ± SD 17.27 ± 6.49, Avoidance ranged 2-28 with mean ± SD 17.52 ± 8.12, physical symptoms ranged 0-16 with mean ± SD 8.36 ± 4.44 and total score of BSPS ranged 7-65 with mean ± SD 42.85 ± 17.52. Regarding, the ASSI total score range was 13-45 with mean ± SD 29.88 ± 7.69 (Table 4).

Pearson's correlation test was done showing there was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the whole sample, *p value*=0.000, *p value*=0.001, *p value*=0.001 respectively. Also showing a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adolescent's sample, *p value*= 0.003, *p value*=0.010, *p value*=0.004 respectively. There was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adult's sample, *p value*= 0.013, *p value*=0.042, *p value*=0.078 respectively (Tables 5,6).

In order to find out if there is a variation in fear, avoidance, physical symptoms, total SSI score among adolescents and adults an independent t test was done. Regarding fear, the mean score in adolescents (18±5.74) is higher than in adults (16.74±7.10), showing no significant association, *p value*= 0.589. To find out if there is any variation in avoidance score and physical symptoms among adolescents and adults, the score recorded no difference in adolescents (17.50±7.39)(9.50 ± 4.42) respectively, from adults (17.53 ± 8.83) (7.53 ± 4.39) respectively, *p value*= 0.993 & 0.212 respectively.

As for the total SSI score recorded no difference in adolescents (29.93 ± 9.30) from adults (29.84 ± 6.53), *p value*= 0.212 (Table 7).

A linearby- linear association test was done to determine if there is an association between stuttering severity and gender showing no statistically significant association, *p value*= 0.066 (Table 8).

As well as a linear-by-linear association test was done to compare the degree of stuttering severity (categorial) among adolescents and adults (Table 9). There is no statistically significant association, *p value*= 1.

A Spearman correlation test was done within age groups between fear, avoidance, physical symptoms, and total score of SSI. In the adolescent's group, there is a moderate to strong relationship between the four variables, *p value*= 0.014, 0.043, 0.014, and 0.009 respectively.

There is a significant moderate and positive relationship between fear, avoidance, physical symptoms, and total score of SSI in the adults group. *P values*= 0.002, 0.033, 0.083, and 0.018 respectively (Table 10).

Table 1: This Table shows a total of 33 participants were included in the study. As shown in Table 1, more than one half of the participants were males (69.7%) and 30.3% females

		N	%
Sex	male	23	69.7%
	female	10	30.3%

Table 2: This Table shows the mean and the standard deviation for the age & intelligence quotient (IQ) of all participants. All participants were within average mental abilities according to Stanford-Binet Intelligence Scale-Fifth Edition (SB5) with mean± SD101.48±7.36. Including 14 adolescents and 19 adult stutterers

	Mean ± SD	Range
Age	18.45 ± 2.32	15 - 23
IQ	101.48 ± 7.36	87 - 114

Table 3: This Table shows the categorial results of the Stuttering severity index-Arabic version (ASSI) of all participants. The data recorded 9.1% were very mild stutterers, 9.1% mild stutterers, 30.3% moderate stutterers, 36.4% severe stutterers and 15.2% very severe stutterers

		N	%
SSI	very mild	3	9.1%
	mild	3	9.1%
	moderate	10	30.3%
	severe	12	36.4%
	very severe	5	15.2%

Table 4: This Table shows the mean and the standard deviation SD of all items in the BSPS scale including fear, avoidance, and physical symptoms as well as the ASSI total score. The data recorded fear range 5-26 with mean ± SD 17.27 ± 6.49, Avoidance ranged 2-28 with mean ± SD 17.52 ± 8.12, physical symptoms ranged 0-16 with mean ± SD 8.36 ± 4.44 and total score of BSPS ranged 7-65 with mean ± SD 42.85 ± 17.52. Regarding, the ASSI total score range was 13-45 with mean ± SD 29.88 ± 7.69

	Mean ± SD	Range
BSPS		
Fear	17.27 ± 6.49	5 - 26
Avoidance	17.52 ± 8.12	2 - 28
Physical symptoms	8.36 ± 4.44	0 - 16
Total Score	42.85 ± 17.52	7 - 65
SSI		
SSI total score	29.88 ± 7.69	13 - 45

Table 5: Pearson's correlation: Pearson's Correlation test was done, as shown in Table [5] there was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the whole sample, *p value*= 0.000, *p value*=0.001, *p value*=0.001respectively

	SSI total score					
	Whole sample (N = 33)		adolescents (N = 13)		Adults (N = 19)	
	r	*p value*	r	*p value*	r	*p value*
Age	-0.013	0.945	0.121	0.681	-0.080	0.744
IQ	-0.144	0.424	-0.073	0.803	-0.217	0.371
BSPS:						
Fear	0.613	0.000	0.736	0.003	0.56	0.013
Avoidance	0.539	0.001	0.66	0.010	0.47	0.042
Physical symptoms	0.549	0.001	0.722	0.004	0.414	0.078
Total Score	0.586	0.000	0.715	0.004	0.52	0.022

Table 6: Pearson's Correlation test was done, as shown in Table [6] showing there was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adolescent's sample, *p value*= 0.003, *p value*=0.010, *p value*=0.004 respectively. There was a strong correlation between fear, avoidance, physical symptoms and stuttering severity in the adult's sample, *p value*= 0.013, *p value*=0.042, *p value*=0.078 respectively

	SSI total score					
	Whole sample (N = 33)		adolescents (N = 13)		Adults (N = 19)	
	r	*p value*	r	*p value*	r	*p value*
Age	-0.013	0.945	0.121	0.681	-0.080	0.744
IQ	-0.144	0.424	-0.073	0.803	-0.217	0.371
BSPS:						
Fear	0.613	0.000	0.736	0.003	0.56	0.013
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Physical symptoms	0.549	0.001	0.722	0.004	0.414	0.078
Total Score	0.586	0.000	0.715	0.004	0.52	0.022

Table 7: Comparison of fear, avoidance and physical symptoms score among adults and adolescents As shown in Table [7]. An independent t test was done to find out if there is a variation in fear score among adolescents and adults, the mean score in adolescents (18±5.74) is higher than in adults (16.74±7.10), showing no significant association, p value= 0.589 Independent t test was done to find out if there is any variation in avoidance score and physical symptoms among adolescents and adults, the score recorded no difference in adolescents (17.50±7.39)(9.50 ± 4.42) respectively , from adults (17.53 ± 8.83)(7.53 ± 4.39) respectively , *p value*= 0.993& 0.212 respectively. The total SSI score recorded no difference in adolescents (29.93 ± 9.30) from adults (29.84 ± 6.53), *p value*= 0.212.

	adolescents		adult		t test		
	Mean	SD	Mean	SD	t	*p value*	sig.
BSPS:							
Fear	18.00	5.74	16.74	7.10	0.55	0.589	NS
Avoidance	17.50	7.39	17.53	8.83	-0.01	0.993	NS
Physical symptoms	9.50	4.42	7.53	4.39	1.27	0.212	NS
Total Score	44.29	15.68	41.79	19.11	0.40	0.692	NS
Total SSI score	29.93	9.30	29.84	6.53	0.03	0.975	NS

Table 8: Association between SSI and gender A linear-by-linear association test was done to determine if there is an association between stuttering severity and gender showing no statistically significant association, *p value*= 0.066

		Male		female		Linear by linear association		
		N	%	N	%	X^2	*p value*	sig.
SSI	very mild	0	0.0%	3	30.0%	3.9	0.066	NS
	mild	2	8.7%	1	10.0%			
	moderate	8	34.8%	2	20.0%			
	severe	9	39.1%	3	30.0%			
	very severe	4	17.4%	1	10.0%			

Table 9: Comparison of SSI categories among adolescents and adults A linear-by-linear association test was done to compare the degree of stuttering severity (categorial) among adolescents and adults, as shown in Table 9. There is no statistically significant association, *p value*= 1

		adolescents		adult		Linear by linear association		
		N	%	N	%	X^2	*p value*	sig.
SSI	very mild	1	7.1%	2	10.5%	2.02	1	NS
	mild	2	14.3%	1	5.3%			
	moderate	5	35.7%	5	26.3%			
	severe	2	14.3%	10	52.6%			
	very severe	4	28.6%	1	5.3%			

Table 10: Spearman Correlation between age groups and fear, avoidance, and physical symptoms A correlation test was done within age groups between fear, avoidance, physical symptoms, and total score of SSI in the adolescent's group, there is a moderate to strong relationship between the four variables, *p value*= 0.014, 0.043, 0.014, and 0.009 respectively. There is a significant moderate and positive relationship between fear, avoidance, physical symptoms, and total score of SSI in the adults group. *P values*= 0.002, 0.033, 0.083, and 0.018 respectively

	Age		Fear	Avoidance	Physical symptoms	Total Score
SSI	adolescents	Spearman Rho r_s	0.636	0.547	0.637	0.667
		p value	0.014	0.043	0.014	0.009
		sig.	S	S	S	S
	adult	Spearman Rho r_s	0.652	0.49	0.407	0.534
		p value	0.002	0.033	0.083	0.018
		sig.	S	S	S	S

DISCUSSION

Our study found that there was a correlation between social phobia with its all variables and stuttering and this come in concordance with a study done by Rezaeian and his colleagues on 2020 who conducted a meta-analysis reviewed a 321 paper from 1985 to 2020 who found that when stuttering and non-stuttering people are compared, It has been discovered that stutterers are several times more likely than non-stutterers to be diagnosed with social phobia, anxiety, or general anxiety disorder[11].

Also, with another study that 16 adults seeking speech treatment for stuttering underwent diagnostic interviews and verbal fluency exams. Patients were also asked to fill out questionnaires that measured the severity of their social phobia symptoms as well as their capacity to function.; they found that more than half the patients had DSM-IV criteria stated a diagnosis of social phobia[12].

In our study we found that there was a strong relationship between fear and the seriousness of social phobia and this was in agreement with a study done in Japan who examined 130 people who stutter PWS and 114 non-stuttering adults where PWS reported higher scores on both fear subscales of the social phobia scale, according to a 24-item self-reported survey of social phobia and avoidance across diverse daily scenarios[13].

On the other hand, a study on adolescents' age group, investigated a total of 99 adolescents, comprising 48 stutterers and 51 generally fluent controls. The study examined stuttering and social anxiety's impact on unclear social situations. However, social anxiety had a substantial effect across groups, with higher social anxiety being a higher level of social anxiety is connected to a higher number of negative interpretations, while a lower level of social anxiety is linked to a higher number of positive interpretations and on comparing with our results which found that fear score and avoidance where higher in this age group which demonstrates the negative consequences of social phobia and stuttering on this age group[14].

Meanwhile, our research found that in the adolescent group, there was a significant association between fear, avoidance, somatic symptoms, and stuttering severity, and that there was no difference between adolescents and adults and this data came with agreement with a study in 2004, ninety-four males between the age group of 18 and 43, half of whom were non-native speakers and half of those were native speakers, done two questionnaires: the Trait Anxiety Inventory and the Speech Situation Checklist. The stuttering group rated the intensity of their stuttering as well. The findings show that stutterers who suffer from severe stuttering, in social communication they experience increased state anxiety than mild stutterers and fluent speakers, and state anxiety in social communication is higher among severe stutterers than mild stutterers and fluent speakers[15].

Also, our study found no statistically significant association between stuttering severity and gender, and this come with concordance with a recent study, 56 teenagers who stutter (TWS) aged 13 to 17 years old were given the Swedish version of the Overall Assessment of the Speaker's Experience of Stuttering (OASES-T-S) (26 females, 30 males). There was no difference in the intensity of overt stuttering symptoms across the groups. Stuttering had a bigger influence on female TWS' lives than on male TWS' lives; Young women may be more vulnerable than young men of the same age to the harmful effects of stuttering[16].

Concerning severity of stuttering in relation to age, our study found that the total SSI score recorded no difference in adolescents from adults and this was in disagreement with another study focused at 58 Arabic-speaking Egyptian youngsters ages 5-9 years and 9 months who were seen at Demrdash Hospital's Phoniatrics clinic (Ain Shams University), the children were assessed for fluency disorders, which included a clinician's assessment of severity of stuttering using the Bloodstein Classification of stuttering severity BLS and ASSI. The age of the participants children

who stutter were significantly inversely connected to ASSI score; there was a noteworthy positive association between the severity of stuttering and the grades. determined by BLS categorization and ASSI. And this disparity could be attributable to age differences[17].

CONCLUSION AND RECOMMENDATIONS

Our study found a strong correlation between fear, avoidance, physical symptoms, and stuttering severity in the whole sample. Accordingly, such data could assist phoniatricians, speech-language pathologists, psychiatrists and psychologists who will work simultaneously for the treatment of such cases to reach the optimum improvement. Psychiatric treatment in the form of medical treatment (anxiolytics and antidepressants) as well as psychotherapy (cognitive restructuring, cognitive behavioral and social skills training) will be given in parallel with the speech therapy sessions.

CONFLICT OF INTERESTS

There are no conflicts of interest.

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