ELSEVIER

Journal of Fluency Disorders
27 (2002) 319–331

Journal of
FLUENCY
DISORDERS

Stuttering and social anxiety

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Received 3 May 2001; received in revised form 11 June 2002; accepted 27 August 2002

Abstract

The aim of the present study was to investigate the presence of social anxiety in adults who stutter. This was done by administering the Inventory of Interpersonal Situations (IIS) (Van Dam-Baggen & Kraaimaat, 1999), a social anxiety inventory, to a group of 89 people who stuttered and 131 people who did not stutter. Two components of social anxiety were measured by the ISS, the extent to which emotional tension or discomfort is perceived in social situations and the frequency with which social responses are executed. The people who stuttered displayed significantly higher levels of emotional tension or discomfort in social situations. They also reported a significantly lower frequency of social responses compared to their nonstuttering peers. In addition, about 50% of the scores of the people who stuttered fell within the range of a group of highly socially anxious psychiatric patients. The results of the study suggest that the measurement of social anxiety is an important element in the assessment of adults who stutter.

Educational objectives: The reader will learn about and be able to describe (1) the IIS as an assessment procedure for evaluating social anxiety, (2) the level of discomfort expressed by adult stutterers in social situations, and (3) the effect of social anxiety on stutterers' responsiveness in social situations.

Keywords: Stuttering; Social anxiety; Inventory of Interpersonal Situations

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PII: S0094-730X(02)00160-2

1. Introduction

For many persons who stutter, the existence of speech-associated negative emotion, anxiety and emotional tension, is often a notable reason why they seek therapy. Clinically, there is a consensus among therapists that anxiety is one of the many predisposing, precipitating and persisting factors that may play a role in stuttering (Janssen, 1994; Menzies, Onslow, & Packman, 1999). There are, however, diverging research findings about the involvement of anxiety in stuttering. Yet, clarity relative to this issue would serve to make evident the role, if any, that anxiety management should play in therapy.

To come to grips with the issue of anxiety, it is important to distinguish between the way in which and the extent to which it manifests itself. In its most molar sense, anxiety is conceptualized as a general disposition and stable characteristic of an individual. With regard to this level of definition, anxiety refers to the fact that many domains of functioning are influenced by anxiety (e.g., "trait anxiety"). More restricted is the anxiety for different social situations (i.e., social anxiety), and even more specific is speech anxiety that revolves around stuttering and the speech situations associated with its occurrence. Still more, a distinction needs to be made between the cognitive-verbal, behavioral, and physiological components of anxiety. This recognition has been seen as an important breakthrough in the diagnosis and treatment of anxiety (Lang, 1971). The experience of anxiety is based on thoughts about anticipated negative experiences and events, the avoidance of certain situations or actions, and/or the perception of physical sensations, such as muscle tension, sweating and heart palpitations. These three ways of reacting can exist alone or together. In the latter case, they heighten the experience of anxiety.

Our view of the relationship between anxiety and stuttering stems, to a great extent, from research based on the two-factor theory of Brutten and Shoemaker (1967, 1971). The two factors in this theory refer to the learning processes of classical and instrumental conditioning. This theory postulates that stuttering is a disintegration of speech resulting from classical conditioned negative emotion. That is, learned negative emotional reactions lead to the disintegration of speech, which is evidenced by involuntary silent or oral tense prolongations and/or fast sound and syllable repetitions. Instrumental conditioning, on the other hand, forms the basis for the escape and avoidance behaviors of persons who stutter that relate to speech situations, words, or sounds. Central to this two-factor theory is the idea that persons who stutter have a predisposition of a low emotional threshold and a limited neuro-physiological make-up, which make them susceptible to emotional conditioning (Brutten, 1986). Research comparing groups of people who stutter with those who do not relative to trait anxiety did not find a relatively low emotional threshold among those who stutter (Janssen & Kraaimaat, 1980; Peters & Hulstijn, 1984). However, the amount of negative emotion or anxiety that was reported and/or the "arousal" that was measured in groups of persons who stutter has been shown to be widely divergent (Janssen & Kraaimaat, 1980; Kraaimaat,

1980; Peters, 1987; Peters & Hulstijn, 1984; Weber & Smith, 1990). This points to a possible interactive interplay of neuro-physiological limitations and emotional reactivity in stuttering. With respect to the disruption of speech-motor control necessary for fluency, research has shown that the effect of the physiological component of negative emotion on stuttering relates only to specific fluency failures, such as fast sound repetitions (Janssen & Kraaimaat, 1980). It was evident that this behavior is not reduced by contingent negative stimulation, whereas instrumental behaviors, like arm swings and head turns, are (Bastijns, Brutten, & Stes, 1978; Brutten & Shoemaker, 1971; Janssen & Brutten, 1973).

Though people who stutter have been shown to display significantly more speech-specific negative emotion and mal-attitudes than their nonstuttering peers (Bakker & Brutten, 1984; Brutten, 1981; Brutten & Janssen, 1980; DeNil & Brutten, 1991; Erickson, 1969; Kraaimaat, 1980; Peters, 1987; Vanryckeghem & Brutten, 1996, 1997; Vanryckeghem, Hylebos, Peleman, & Brutten, 2001), relatively little research has been done to determine if people who stutter, as a group, have significantly greater overall social anxiety than people who do not stutter. A pilot study of adults who stutter found a level of social anxiety that was significantly lower than that of highly socially anxious psychiatric patients but significantly higher than that of a control group (Janssen, Kraaimaat, & Van Dam-Baggen, 1987). These findings suggested the possibility that a subgroup of adults who stutter may have relatively high social anxiety. Relatively high levels of social anxiety and avoidance of social situations are indicative of the psychiatric disorder of social phobia. In DSM-IV (APA, 1994) persons are classified as socially phobic if they meet certain criteria, such as severe anxiety about self-evaluations in social situations as well as anxiety that might be expressed by physical phenomena that interferes with daily functioning. Stein, Baird, and Walker (1996) found that 7 of the 16 adults who stuttered in their sample fit the DSM-IV inclusion criteria for social phobia.[1] The pilot study by Janssen et al. (1987) together with the Stein et al. (1996) data indicate that there may be a subgroup whose stuttering-related negative emotion extends to social anxiety. To be sure, the experience of a relatively high amount of emotional tension in social situations and the reticence in social interaction that defines social anxiety is present among some who stutter. This and the fact that social anxiety has been shown to have a notable effect on one's psychological and social functioning (Van Dam-Baggen & Kraaimaat, 1994, 2000a; Wittchen, 2000) suggest the need to explore the presence of social anxiety among those who stutter. Thus, the purpose of this research was to investigate whether or not differences exist between adults who do and do not stutter as it relates to two components of social anxiety, the experience of discomfort in social situations and the frequency with which social responses are performed.

[1] In DSM-IV social anxiety and avoidance are suggested to be inevitably linked to stuttering. Because of this, stuttering is an exclusion criterion for the diagnosis of social phobia. It has to be noted that, in their study, Stein et al. suspended this criterion, which inhibits DSM-IV classification of social phobia (APA, 1994).

2. Method

2.1. Participants

The subjects of this investigation were 89 adults who stuttered, ages 18 through 50 years, with a mean age of 28 years, 2 months (S.D. = 9.9). They were recruited via 15 speech–language pathologists in Mid-Western and Mid-Eastern areas of the United States. The diagnosis of stuttering was made by clinicians, using their own customary criteria. The 89 adults who stuttered, 66 men and 23 women, had just been enrolled in therapy and were consecutively added to the case-load of the speech–language pathologist at the time of data collection. The control group consisted of 131 adults who did not stutter. Their mean age was 24 years, 3 months (S.D. = 5.9). The adults who did not stutter comprised a stratified sample of the general population that was in keeping with the age range and gender ratio of those who stuttered. Total 96 were male and 35 female. Total 80% of the persons who stuttered and 70% of the people who did not stutter had levels of education below the college level.

2.2. Materials

Two aspects of social anxiety were measured by the Inventory of Interpersonal Situations (IIS) (Van Dam-Baggen & Kraaimaat, 1987, 1999, 2000a, 2000b, 2000c, 2000d). The IIS is based on self-evaluation and measures the verbal-cognitive component of social anxiety. It consists of discomfort and frequency of occurrence scales, which investigate, respectively, anxiety and emotional tension in social situations and the frequency with which social responses or skills are performed. Both parts of the IIS employ the same 35 items to elicit responses to social situations (see Appendix A). Its items refer to social responses or skills in social situations (e.g., “Asking for a further explanation about something you did not understand” and “Initiating a conversation with a stranger”). Discomfort and frequency of occurrence are indicated on a 5-point scale ranging from 1 (no discomfort) to 5 (very much discomfort) and 1 (I never do) to 5 (I always do), respectively. The 35 statements can be grouped into the following five sub-scales: “giving criticism,” “expressing opinion,” “giving a compliment,” “initiating contact,” and “positive self-statements.”

Adequate validity, internal consistency, and test–retest reliability of the IIS scales and sub-scales on all levels have been reported. Specifically, a high internal consistency of the IIS discomfort (alpha $>$ 0.93) and frequency scales (alpha $>$ 0.91) and their sub-scales has been found in studies involving different samples of psychiatric patients and healthy subjects. Also, the IIS has proven to have adequate sensitivity to the changes of those psychiatric patients who received treatment. Next, the frequency scale was found to be indicative of the frequency and quality of overt behavior in social situations. This was reflected in the scale’s high predictive validity for a set of relevant overt behaviors and its close relationship to ratings of

the quality of overt behavior by independent judges. Consistent with the literature in which high levels of negative emotion in social situations are related to low levels of social behaviors, correlations between scores on the discomfort and frequency scales were about $r = -0.40$ in samples of the general population and about $r = -0.60$ in samples of high socially anxious people. The five sub-scales of the IIS were formed by means of factor analytic procedures and were found to be invariant in persons from the general population and in psychiatric patients with social anxiety disorder. An extensive overview of the aforementioned psychometric research data on the IIS can be found in Van Dam-Baggen and Kraaimaat (1999).

3. Results

No difference was found between adults who stutter and those who do not in level of education. Stratification of both groups of participants with respect to age was not as successful and resulted in a statistically significant difference in age ($t = 3.82$; $P < 0.001$). Because age might be a factor that affects social anxiety, it was decided to control for age using an ANCOVA procedure. Comparisons of the groups relative to the extent to which emotional tension is perceived in social situations (discomfort scale and sub-scales) and the frequency with which social responses are executed (frequency scale and sub-scales) are displayed in Tables 1 and 2.

Table 1 displays the scores of the two groups on the "Discomfort" section of the IIS. Total scores, as well as all but one sub-scale score, indicated statistically significantly higher levels of emotional tension in people who stutter. On the "positive self-statements" sub-scale, the difference between the two groups was only numerical in nature. When the findings of both groups are compared with IIS normative data (Van Dam-Baggen & Kraaimaat, 2000d), it is clear that the total scores of persons who stutter on the discomfort scale are comparable to those of a heterogeneous group of psychiatric patients, whose mean score was 91.8 (S.D. = 27.8), but

Table 1
Means, standard deviations and *F*-values for persons who stutter and persons who do not stutter on the discomfort scale of the IIS

Discomfort	Persons who stutter		Persons who do not stutter		*F*-covariate age	*F*-groups
	Mean	S.D.	Mean	S.D.		
Total	90.04	22.46	70.45	18.47	0.99	40.90***
Criticism	20.78	5.40	18.34	4.73	0.26	10.87***
Opinion	16.67	5.10	11.97	4.33	0.50	53.15***
Initiative	14.94	4.84	10.40	3.00	1.19	73.89***
Compliment	7.18	3.21	6.06	2.91	6.45*	10.69***
Positive self-statements	8.81	3.19	8.19	2.80	3.84	3.87

* $P < 0.05$.
*** $P < 0.001$.

Table 2
Means, standard deviations and *F*-values for persons who stutter and persons who do not stutter on the frequency scale of the IIS

Frequency	Persons who stutter		Persons who do not stutter		*F*-covariate age	*F*-groups
	Mean	S.D.	Mean	S.D.		
Total	101.54	15.82	112.24	13.50	4.53*	33.45***
Criticism	16.34	3.98	18.26	4.11	7.38**	16.37***
Opinion	14.61	2.72	16.21	2.65	0.13	18.58***
Initiative	13.80	3.50	16.05	2.57	0.13	27.25***
Compliment	14.36	2.87	15.82	2.37	5.32*	21.10***
Positive self-statements	12.03	2.83	12.26	2.82	4.26*	1.18

* $P < 0.05$.
** $P < 0.01$.
*** $P < 0.001$.

lower than those of psychiatric patients diagnosed with generalized social phobia (DSM-IV), whose mean score was 100 (S.D. = 26.1) (Van Dam-Baggen & Kraaimaat, 1999, 2000a). The scores of adults who do not stutter, on the other hand, conformed to those of healthy subjects (mean = 70.50, S.D. = 17.8) (Van Dam-Baggen & Kraaimaat, 1999, 2000d).

The second component of social anxiety that was investigated is the relative frequency with which social responses or skills are performed when interacting with others. The results on the "Frequency" section of the IIS, as shown in Table 2, indicate that persons who stutter report significantly fewer social responses than do persons who do not stutter. This is the case for total as well as sub-scale scores on this section of the IIS, except for the "positive self-statements" sub-scale, which again failed to reach statistical significance. When the findings of both groups are compared to IIS normative data (Van Dam-Baggen & Kraaimaat, 1999, 2000d), it is clear that total scores of persons who stutter on the frequency scale are somewhat higher than those of a heterogeneous group of psychiatric patients, whose mean score was 97.4 (S.D. = 20.7), and those of psychiatric patients diagnosed with generalized social phobia (DSM-IV), whose mean score was 94.2 (S.D. = 16.9). The scores of persons who do not stutter, on the other hand, are comparable to those of healthy subjects (mean = 111.3, S.D. = 15.8) (Van Dam-Baggen & Kraaimaat, 2000d). It can be concluded, therefore, that adults who stutter differ from adults who do not stutter as far as negative emotional experience of social situations (discomfort) and responses to them (frequency) are concerned. Such differences were not related to positive self-esteem.

The differences in social anxiety of adults who do and do not stutter might be the result of an inherent link between stuttering and social anxiety. Or, it might indicate that there is a subgroup of adults who stutter with relatively high social anxiety levels. In order to explore these possibilities, frequency distributions were prepared for the total scores on the Discomfort and Frequency sections of the IIS for both groups of subjects. As can be seen in Table 3, there is considerable overlap

Table 3
Distribution of discomfort and frequency scores (in percentages) on the IIS for persons who stutter and persons who do not stutter

Score range	Persons who stutter (%)	Persons who do not stutter (%)
Discomfort		
<50	2	4
51–60	9	26
61–70	9	21
71–80	18	19
81–90	8	11
91–100	22	7
101–110	16	7
>110	16	5
Frequency		
<80	9	
81–90	10	3
91–100	31	21
101–110	25	26
111–120	11	23
121–130	9	19
>130	4	8

in the percentages with which adults who do and do not stutter report discomfort in social situations and the frequency with which social responses or skills are performed. It is evident that not all adults who stutter are highly anxious; about 20% fell within the "low discomfort" score range. However, more than half of the adults who stutter (54%) had "high discomfort" scores. In contrast, only 19% of the adults who do not stutter had high discomfort scores, whereas 51% scored at the low end of the score range. The differences between the two groups are less pronounced as far as frequency of social responses is concerned. Fifty percent of the adults who stutter fell at the low end of the score range, but the same percentage of adults who do not stutter reported high frequency rates of social responses. It is obvious that the overlap between the two groups is more pronounced on scores in this section of the IIS. Calculation of correlation coefficients between the total discomfort and total frequency scales of the IIS revealed a moderate relationship of $r = -0.48$ and $r = -0.40$, respectively, for adults who do and do not stutter.

4. Discussion

Adults who stutter experience significantly higher amounts of emotional tension in social situations than do persons who do not stutter. Moreover, the frequency with which they engage in social interactions is significantly lower than is reported by their nonstuttering peers. Although adults who stutter, as a group, score relatively high in terms of social anxiety, it should be recognized that not every person who

stutters experiences a high level of social anxiety. Clearly these findings contradict the claim presented in the psychiatric DSM-IV classification manual (APA, 1994) that high levels of social anxiety and stuttering *inevitably* occur together. The frequency distribution of scores on the discomfort and frequency scales of the IIS suggests that there may be a subgroup of adults who stutter with high levels of social anxiety similar to those of psychiatric clients. The presence of a subgroup of highly socially anxious adults who stutter is consistent with the preliminary results found by Janssen et al. (1987) and those of Stein et al. (1996).

In the sample of adults who stutter, as in most research studies involving stuttering, only adults who stutter and were already enrolled in therapy participated. It is plausible, therefore, that an important reason for this group to enroll in treatment might have been their negative speech- and speech situation-associated emotions or anxiety. If so, a percentage of about 50% highly social anxious persons is too high for the total population of adults who stutter. Moreover, because only adults who stutter were evaluated, no inferences can be made about the incidence of high social anxiety among stuttering children or adolescents. However, it can be concluded that measurement of social anxiety is an important element in the assessment of adults who stutter.

Because discomfort level in social situations, as well as the frequency with which these situations occur, are affected among highly socially anxious adults who stutter, anxiety reduction techniques as well as social skill training may be indicated in dealing with social anxiety in stuttering. The reason for this is because many socially anxious persons not only fear situations but are also afraid to perform social behaviors, exposure should focus on both social situations *and* social behavior (i.e., social skills). The training and practice of social skills are highly recommended, because they include exposure to social situations and performing social responses as a matter of course, and it cannot be assumed that exposure to such situations includes the performance of social behavior.

It seems plausible that social anxiety among adults who stutter may stem from a generalization of speech-associated negative emotion. It seems obvious, therefore, that attention should be given in speech therapy to anxiety-related speech situations and stuttering among the high socially anxious persons who stutter. If, after dealing with speech-associated anxiety, no decrease in social anxiety is apparent, incorporation of social anxiety reduction in the treatment of the person who stutters should be considered.

Appendix A. Inventory of Interpersonal Situations (IIS) C.M.J. Van Dam-Baggen and F.W. Kraaimaat (Copyright, 1987, 2000)

A.1. Instruction for Part 1: Discomfort

This inventory consists of a number of interpersonal situations. Please indicate the degree of DISCOMFORT you would experience in each of these situations. Use

the following answer key:

1. no discomfort
2. a little discomfort
3. a fair amount of discomfort
4. much discomfort
5. very much discomfort

For example: If you feel a FAIR amount of discomfort when you join a conversation of a small group of people, then circle figure 3 as follows:

Joining a conversation of a small group of people 1 2 ③ 4 5

Please complete the following inventory. Take your time when you work from one situation to the next. There are no right or wrong answers; it is rather your opinion that matters.

A.2. Instruction for Part 2: Frequency Of Occurrence

In this part you will find the same 35 interpersonal situations as described in Part 1. This time you are to indicate HOW OFTEN you behave as described in the situations. Use the following answers:

1. I never do
2. I seldom do
3. I sometimes do
4. I often do
5. I always do

For example: If you NEVER are joining a conversation of a small group of people, you circle number 1 as follows:

Joining a conversation of a small group of people ① 2 3 4 5

One by one you complete the list of interpersonal situations, taking your time. Again there are no right or wrong answers; it only matters what you think you do. Take your time to complete Part 2.

A.3. Items of the IIS

1. Joining a conversation of a small group of people.
2. Telling a friend that he/she is doing something that bothers you.
3. Resisting pressure to accept an offer (for example at the door, in the street).
4. Accepting a compliment for something you did.
5. Asking a friend to help you with something.
6. Requesting the return of something you have lent to someone.
7. Turning down a request to lend someone money.

8. Refusing a request from an authority figure (e.g., employer, superior, teacher).
9. Telling someone that you are pleased with what he/she did for you.
10. Asking someone to stop bothering you in a public place (theatre, subway).
11. Keeping eye contact during a conversation.
12. Asking for information (at a window or booth).
13. Initiating a conversation with an attractive male or female.
14. Expressing an opinion that differs from that of the person with whom you are talking.
15. Initiating a conversation with a stranger.
16. Expressing an opinion that differs from that of those around you.
17. Complimenting someone for a job well done.
18. Returning a defective item (for example, in a store or restaurant).
19. Asking for a further explanation about something you did not understand.
20. Expressing your opinion in a conversation with a group of unfamiliar people.
21. Telling someone that he/she offended you.
22. Refusing a request from a person you like.
23. Expressing your appreciation for a present.
24. Telling someone that he/she is good looking.
25. Discussing why someone seems to avoid you.
26. Telling someone that you like it that he or she appreciates you.
27. Agreeing with a compliment about your looks.
28. Telling someone that you are pleased with something you did.
29. Introducing yourself to someone.
30. Expressing your opinion of life.
31. Telling someone you no longer want to see him/her.
32. Insisting that someone contributes his/her share.
33. Telling someone that the way he/she is talking disturbs you.
34. Expressing your opinion to an authority figure (e.g., employer, superior, teacher).
35. Asking a friend to go out with you.

Please check if you marked all situations

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CONTINUING EDUCATION

Stuttering and social anxiety

QUESTIONS

1. Two factor theory of stuttering (Brutten & Shoemaker) postulates that:
   a. coping behaviors come about as a result of classical conditioning
   b. stuttering behaviors come about as a result of classical conditioning of speech-associated negative emotion
   c. stuttering is not related to a limitation in their neuro-physiology
   d. both instrumental and classical conditioning form the basis of the stuttering syndrome
   e. b and d
2. The IIS consists of two sections that relate to:
   a. discomfort and attitude
   b. attitude and frequency with which social responses or skills are performed
   c. discomfort and frequency with which social responses or skills are performed
   d. emotional reaction and attitude
   e. discomfort and behavioral measures
3. The sub-scales of the IIS do not include the following:
   a. criticizing
   b. giving a speech
   c. initiating contact
   d. giving a compliment
   e. positive statements about him/herself
4. A comparison of the scores of people who stutter with those who do not stutter on the "Discomfort" section of the IIS, indicate that:
   a. people who stutter scored significantly higher than those who do not on all sub-scales
   b. the total score of people who stutter was significantly higher than that of those who do not stutter
   c. the total score and the scores on all but one sub-scale were significantly higher for people who stutter compared to those who do not stutter

d. the score on the "opinion" sub-scale was not significantly different for the two groups
e. b and c

5. A comparison of the scores of people who stutter with those who do not stutter on the "Frequency of Occurrence" section of the IIS, indicate that:
   a. people who stutter scored significantly lower than those who do not stutter on all sub-scales
   b. the total score of people who stutter was significantly higher than that of those who do not stutter
   c. the total score and the scores on all but one sub-scale were significantly higher for people who stutter compared to those who do not stutter
   d. the score on sub-scale "compliment" was not significantly different for the two groups
   e. the total score of people who stutter was significantly lower than that of those who do not stutter