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Assessing Social Anxiety Disorder : Psychometric Properties of the Italian Social Phobia Inventory (I-SPIN)

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ASSESSING SOCIAL ANXIETY DISORDER: PSYCHOMETRIC PROPERTIES
OF THE ITALIAN SOCIAL PHOBIA INVENTORY (I-SPIN)

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Abstract

Objective: Social Phobia, one of the most common psychological disorders, can cause serious discomfort and impairment in a person's life. The importance of assessing the specific features of this disorder is well-known. This paper assesses the psychometric properties of the Italian version of the Social Phobia Inventory (I-SPIN).

Method: Data from 410 subjects were analyzed in order to assess the factor structure and the discriminant validity of the I-SPIN. The sample was sub-divided into two groups: 1) a group of normal population; 2) a clinical group.

Results: Results of Exploratory and Confirmatory Factor Analysis showed a three-factor structure of the I-SPIN. The discriminating ability of the I-SPIN was good.

Conclusions: The Italian version of the I-SPIN emerges as a useful instrument for research and clinical practice.

Key words: assessment, anxiety, psychometrics, personality, psychopathology

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Introduction

Social Anxiety Disorder (SAD, also known as Social Phobia), one of the most common psychological disorders, can cause serious discomfort and impairment in a person's life (Davidson et al. 1993) and also results in huge social costs. People who suffer from SAD have a fear of, and therefore avoid, certain situations because of the anxiety that arises in their minds concerning the possibility of feeling embarrassed or of being judged by others (American Psychiatric Association, 2000). The disorder is characterized by an intense fear of social situations or situations where a performance is required. It is commonly associated with other anxiety disorders, low social-efficacy (Essau et al. 1999), depressive disorders (Kashdan and Roberts 2011), and substance abuse (Merikangas and Angst 1995), including Alcohol Use Disorder (AUD) (Kushner et al. 2000; Van Ameringen et al. 1991).

In recent years interest in Social Phobia has grown, and many interviews and questionnaires suitable for self-administration have been developed in order to assess the symptoms and severity of social anxiety. Unlike interviews, self-administered questionnaires do not examine the whole spectrum of fear, avoidance and physiological components of Social Phobia, many of which are clinically important. Other instruments assess a wide range of features/components but are much too long (Turner et al. 1989) for practical use. Recognising these limitations, Connor et al. (2000), attempted to develop a brief scale capable of assessing the entire spectrum of symptoms which characterize Social Phobia. Modelled on the Brief Scale of Social Phobia (BSPS; Davidson et al. 1997), the Social Phobia Inventory (SPIN) is made up of items which assess fear, avoidance and physiological changes. In the original study (Connor et al. 2000) the writers demonstrate solid psychometric properties in a sample of adult Americans taken from the general public. The results of the original validation study suggest a good test-retest validity (r = .78-.89) and a high internal consistency (Cronbach a= .82-.94). The scale's convergent validity was established through significant correlations between SPIN and other measures of phobia or social anxiety (e. g., *Brief Social Phobia Scale*, *Liebowitz Social Anxiety Scale*), and the low correlations between SPIN and other measures less related to social phobia (eg. *Sheehan Disability Scale*, *Medical Outcomes Study SF-36*, *Marks Fear Questionnaire*) demonstrated the divergent validity of the scale. A score of 19 in SPIN to differentiate clearly between subjects with social phobia and both psychiatric and non-psychiatric controls. An Exploratory Factorial Analysis (EFA) was used to assess factorial validity. An EFA carried out on subjects

with Social Phobia produced five factors: the 1st, 2nd and 4th are related respectively to social avoidance (fear and avoiding speaking to strangers and being in social groups), being criticised and feeling embarrassed, and anxiety regarding authority (people in authority), while the 3rd factor concerns physiological symptoms and the 5th contains item about avoiding speaking in public and being at the center of attention. Carleton et al. (2010), in their study, also examined the factorial structure of SPIN using EFA and a 3 factor solution with 10 items were obtained. The results of a Confirmatory Factorial Analysis (CFA) indicated that this 3 factor and 10 items solution provides better fit than the 5 factor structure.

Other studies has analyzed the psychometric characteristics of the SPIN, that has already been validated in many languages with a diversity of samples (Randomsky et al. 2006; Vilete et al. 2004, 2006; Ranta et al. 2007; Osório et al. 2009, 2010; García-López et al. 2010) and this testifies the importance of assessing this construct. Given that the usefulness of the SPIN is widely acknowledged, the aim of the present paper is to evaluate the main psychometric properties of the Italian version of the Social Phobia Inventory (I-SPIN) and to verify its ability to discriminate between different groups of subjects.

Method

Participants

There were 410 participants of this study (39.7% male, 61.3% female) between the ages of 18 and 65 years of age (M= 34.69; *SD* = 14.89). The sample was sub-divided into two groups: 1) a group of 380 people recruited in central Italy; 2) a clinical group of 30 subjects with diagnoses of Alcohol Abuse Disorder. The clinical group was made up of alcoholics who were being treated in the toxicology department of the *Careggi* Hospital of Florence (Italy) and followed a specific treatment program (Alcoholics Anonymous and Alcoholics Association Club of Florence). The choice of the sample was made considering the high comorbidity between Social Anxiety Disorder (SAD) and Alcohol Use Disorders (AUD); in fact, it seems that 48% of people with a lifetime diagnosis of SAD also meet all the criteria for a lifetime diagnosis of AUD (Grant et al. 2005).

This clinical group was made up of 60% men and 40% women. The ages in the clinical sample ranged between 18 and 60, with an average age of 43.8 years (SD= 14.3). The control sample (n=30), randomly selected from the non-clinical group (group=1), was made up of 33.3% men and 66.7% women. The age of this sub-sample ranged from 18 to 56, with an average of 30.3 years (SD=11.9).

Instruments

Social Phobia Inventory (SPIN; Connor et al. 2000). The Social Phobia Inventory (SPIN) is a 17 self-report measure for assessing experiences related to Social Anxiety, such as fear, avoidance and physiological changes. Each of the 17 items is assessed on a scale of 0 to 4 (not at all, a little, sometimes, very much, always), with the highest score corresponding to greatest difficulty. The total score can range between 0 and 68. Briefness, simplicity, easy calculation of scores, assessment of three different clinically important symptoms, diagnostic effectiveness, and ability to predict accurately response to treatment, are among the most important advantages of the instrument. The SPIN has demonstrated good psychometric properties with a satisfactory test-retest validity (*r* = .78-.89) and high values of internal consistency (Cronbach *a*= .82-.94) and a factor structure with 5 factors (1=Social Inadequacy; 2=Fear and avoidance of criticism; 3=Physiological Symptoms; 4= Social Inferiority; 5=Avoidance of attention to oneself).

MacAndrew Alcoholism Scale-Revised (MAC-R; Butcher et al. 1998). The MAC-R scale is one of the supplementary scales of the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). The original MAC-R was developed by MacAndrew (1965) and consisted of 51 true/false items. The MMPI-2 version of the MAC-R consists of 49 statements. Studies based on this scale have shown that high scores can be associated with a general proneness to drug addiction in general rather than to alcoholism. A raw score of 28 or more gives evidence of likely substance abuse. Scores between 24 and 27 are suggestive of this behavior, but at this level it is also possible to obtain many false positives (that is, people identified as having substance use problems because of their scores but who in fact do not). Scores lower than 24 indicate an absence of problems connected to substance abuse.

Procedure

Items of the original version of the SPIN have been translated with the method of back-translation. Besides, the translated items were critically evaluated in terms of their content validity and overall appropriateness (Giannini 2010). The response format of the translated version of the SPIN remained a Likert scale with five points (not at all, a little, sometimes, very much, always) (see **table 1**). Original and back translated versions of the SPIN, have been compared by two independent judges (professional psychotherapists). A good level of agreement was obtained (*K* = .86, *p*< .001). As in a previous study (Luca et al. 2011), procedures of translation and validation of the I-SPIN partially followed the practical guidelines of translating tests (Van de Vijver and Hambleton 1996).

All participants of this study were Italian and completed the Italian version of Social Phobia Inventory (I-SPIN). The clinical group also completed an Italian version of the MacAndrew Alcoholism Scale-Revised (MAC-R; Butcher et al. 1998) and provided informed consent. The questionnaires were administered individually. The subjects were guaranteed privacy, anonymity, and the use of data for statistical purposes only.

Data analysis

First, descriptive statistics were calculated (mean, standard deviation, minimum and maximum, asymmetry and kurtosis) for both groups of participants.

Exploratory Factor Analysis (EFA) was carried out on half of the sample (*n*=180) in order to investigate the factor structure of the Italian version of the SPIN.

Using the remaining part of the sample (*n*=200), excluding the clinical group, Confirmatory Factor Analysis (CFA) was carried out in order to verify the good fit of the EFA solution to the data.

Reliability of the scale was calculated both with the Cronbach's *alpha* coefficient and with item-total correlation indices.

Correlations among the SPIN score factors and the MAC-R total score were also calculated.

Finally, an Analysis of the Variance (One-way ANOVA) was carried out to evaluate the difference between the means of the clinical group of subjects (*n*=30) and a randomly selected part of the non-clinical group.

Results

Results of an Exploratory Factorial Analysis (EFA) using the Principal Axis Factoring method of extraction showed a tri-factorial solution for the I-SPIN. On the basis of the Factor Analysis Criteria (eigenvalues > 1, examination of the scree plot, and parallel analysis) we extracted three factors accounting for 49.84% of the total variance (KMO=.85). The first factor accounts for 33.91% of the variance, the second 8.8%, and the

Table 1. *Translated items and rotated factor structure of the I-SPIN*

Factor Eigenvalue	1° 5.76	2° 1.49	3° 1.21
Items			
1. Fear of people in authority *1. Ho paura delle persone che hanno autorità*	0.08	-0.12	**0.64**
2. Bothered by blushing *2. Sono infastidito/a dall'arrossire di fronte agli altri*	**0.64**	- 0.30	0.13
3. Fear of parties and social events *3. Le feste e gli eventi sociali mi spaventano*	0.29	**0.49**	- 0.22
4. Avoids talking to strangers *4. Evito di parlare a persone che non conosco*	0.21	**0.22**	0.12
5. Fear of criticism *5. Essere criticato/a mi spaventa moltissimo*	**0.64**	- 0.14	0.19
6. Avoids embarrassment *6. La paura di sentirmi di imbarazzo mi porta ad evitare di fare molte cose e parlare con le persone*	**0.54**	0.63	0.06
7. Distressed by sweating *7. Sudare di fronte agli altri mi provoca ansia*	**0.57**	0.13	- 0.10
8. Avoids parties *8. Evito di andare alle feste*	- 0.14	**0.76**	- 0.04
9. Avoids being the centre of attention *9. Evito le attività in cui dovrei essere al centro dell'attenzione*	- 0.24	**0.74**	0.29
10. Fear of talking to strangers *10. Parlare agli estranei mi spaventa*	**0.37**	0.33	- 0.10
11. Avoids speeches *11. Evito di dover fare dei discorsi in pubblico*	0.28	0.17	**0.30**
12. Avoids criticism *12. Farei qualsiasi cosa per evitare di essere criticato/a*	**0.40**	0.03	0.14
13. Distressed by palpitations *13. Sono infastidito/a dai battiti del mio cuore quando mi trovo tra altre persone*	0.31	**0.37**	- 0.17
14. Fear of others watching *14. Ho paura di fare le cose quando le persone potrebbero guardarmi*	**0.47**	0.27	0.11
15. Fear of embarrassment *15. Sentirmi in imbarazzo o sembrare stupido/a sono tra le mie peggiori paure*	**0.68**	0.02	- 0.04
16. Avoids talking to authority *16. Evito di parlare a chiunque rappresenti l'autorità*	0.22	0.24	**0.34**
17. Distressed by trembling or shaking *17. Tremare o dimenarmi di fronte agli altri mi angoscia molto*	**0.51**	0.18	0.03

Note. The table shows the English and the Italian version of the items of the SPIN. Items for each factors are in bold.

third 7.13%. The fourth eigenvalue was .98 with a 5.8 of variance explained by this factor.

Results of Confirmatory Factorial Analysis (CFA) (see **figure 1**), although the chi-square was significant (x^2=273.78, p<.001), confirmed the three-factor solution of the I-SPIN and showed acceptable values of indices of fit: Comparative Fit Index (CFI; Bentler 1990) had a value equivalent to .90; the Tucker-Lewis index (TLI;

= .55, p < .001; Factor 2 = Avoidance, r = .47, p < .001; Factor 3= Authority Problems, r = .48, p < .001).

The mean score obtained by the clinical sample (n= 30) of I-SPIN was 28.63 (SD = 19.68), and the mean of the control sample (n = 30) was 12.26 (SD = 5.65), and the one-way ANOVA showed a significant difference between the means of the two groups, F (1,58) = 19.16. p< .001.

Figure 1. *Path diagram of the I-SPIN with three factors*
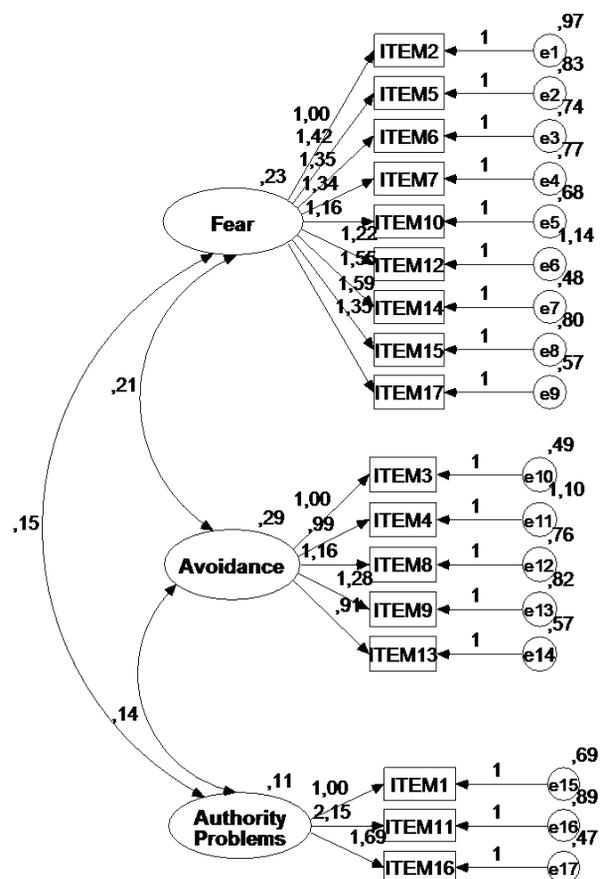
Tucker and Lewis 1973) had a value of .89, and the Standardized Root Mean Square Residual (SRMR) had a value of .08.

Calculation of reliability, carried out by means of Cronbach's *alpha* coefficient, showed internal coherence of the instrument of .87 for the total score of the Italian version. Cronbach's *alphas* for the three factors extracted were: Factor 1=Fear, (a = .83); Factor 2=Avoidance, (a = .70); Factor 3=Authority Problems, (a = .60).

Calculations of item-total correlation by means of Pearson r's indicated that all the items correlated significantly and in a positive direction with the total score of the Italian Social Phobia Inventory (I-SPIN), with the correlations ranging from a minimum of .36 to a maximum of .72.

As regard to the correlation between the I-SPIN total score and the MAC-R total score in the clinical sample, it was statistically significant, r = .52, p < .001, and indicating a strong association between Social Anxiety Disorder and Alcohol Use Disorders. Correlations between the I-SPIN factors and MAC-R total score also showed high values: Factor 1 = Fear, r

Discussion

The aim of this study was to analyse the psychometric characteristics of the Italian version of the Social Phobia Inventory (I-SPIN). The results obtained with EFA and CFA showed a 3 factor solution for the I-SPIN, as in the study of Carleton et al. (2010), but contrasting with the original study (Connor et al. 2000) where a 5 factor solution was identified. Compared to the original version, where the 1st, the 2nd and the 4th factors are related respectively to social avoidance, being criticised and feeling embarrassed, and anxiety regarding authority, the 3rd factor concerns physiological symptoms and the 5th contains item about avoiding speaking in public, in this three factor solution the 1st factor is related to Fear (Fear of criticism, Fear of talking to strangers, Fear of embarrassment) and contains also items of physiological symptoms (Distressed by trembling or shaking), the 2nd factor is related to Avoidance (Avoids parties, Avoids being the centre of attention), while the 3rd factor, contains item about Authority Problems (Avoids talking to authority, Fear of people in authority). Although this three factor

Table 2. *One-way ANOVA between the clinical group and the control group calculated for single factors and for the total score of the I-SPIN*

	Clinical (*n*=30)	Control (*n*=30)	df	F	*p*
	Mean (*SD*)	Mean (*SD*)			
SPIN					
1° factor	12.2(9.2)	6.2(3.7)	59	13.94	.001
2° factor	6.7(4.8)	2(1.8)	59	24.25	.001
3° factor	5.1(3.7)	2.5(1.8)	59	11.88	.001
Total score	28.6 (19.6)	12.2 (5.6)	59	19.16	.001

solution showed some limitations (for example, Factor 3 has only three items) it appeared the best solution for this data on the basis of the Factor Analysis Criteria.

The sufficiently high value[s] of Cronbach's *alpha* indicated an acceptable level of internal consistency of the I-SPIN. Only Factor 3 (Authority Problems) showed a moderate value of internal consistency (*a* = .60), that is probably due to the restricted number of items related to the factor.

The I-SPIN showed a good capability to discriminate between different groups of subjects; indeed, subjects of the clinical group obtained higher values in the three factor scores and in the total score of the I-SPIN compared to the control group.

Results of this study indicate that the I-SPIN is a self-report instrument with acceptable psychometric properties, and suggest that the I-SPIN promises to be useful in practice and research assessing the presence of a Social Phobia both in the clinical and non-clinical population.

This study has some limitations that could suggest ideas for additional research. First, the clinical sample included only patients with a diagnosis of Alcohol Use Disorders (AUD); in this direction it may be useful to extend the clinical sample and analyse differences among different clinical groups. Second, regarding to the convergent validity of the I-SPIN, it would be useful to correlate the I-SPIN with other measures of phobia or social anxiety (e. g., *Brief Social Phobia Scale, Liebowitz Social Anxiety Scale*).

Considerations for future directions could be assessing a larger and more representative sample as well as to investigate the ability of the test to identify changes during or at the end of a course of treatment for SAD, to improve the efficacy and effectiveness of treatment (Gori et al. 2010). Besides, it would also be interesting, in the context of longitudinal studies, to follow and analyse the development of the relationship between Social Anxiety Disorder and Alcohol Use Disorders. In fact, the positive results shown in the studies on the possible connections between SAD and AUD indicate the need to continue investigating this subject (Egglest et al. 2004, Ham et al. 2007).

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