Artigo Original

Validity and reliability of the social phobia safety behaviour scale in social anxiety

Validade e fidedignidade da Escala de Comportamento de Segurança na Ansiedade Social (ECSAS)

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Abstract

Context: The use of safety behaviours stresses the cognitive failure and tends to distort the evaluation of interpersonal experiences. **Objective:** To assess the reliability of the self-administered Social Phobia Safety Behaviors Scale (ECSAS in the Portuguese acronym) in order to determine the association of social anxiety disorder (SAD) with processes related to safety behaviors. **Method:** A total of 155 university students of both genders with no previous history of psychiatric treatment, divided into two groups (80 cases and 75 non-cases of SAD), were systematically assessed using the Social Phobia Inventory (SPIN) and the Structured Clinical Interview for the DSM-IV (SCID-IV) for diagnostic confirmation and for the exclusion of other psychiatric disorders. **Results:** The internal consistency of the ECSAS measured by the Cronbach alpha was 0.92, and, based on the test-retest method separated by a two-week interval, it reached satisfactory levels of temporal stability, with a weighted Kappa of 0.73. Regarding discriminant validity, the ECSAS had 0.963 sensitivity and 1 specificity. Regarding convergent validity, it presented a correlation (r) of 0.60. **Conclusion:** The ECSAS presented good psychometric indicators, contributing to a systematic assessment of the safety and avoidance behaviors associated with SAD.

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Resumo

Contexto: A utilização dos comportamentos de segurança acentua a falha no processamento cognitivo e tende a distorcer a avaliação de experiências interpessoais. **Objetivo:** Avaliar a fidedignidade e a validade da escala autoaplicável Social Phobia Safety Behaviours Scale (ECSAS), visando a verificar a associação do transtorno de ansiedade social (TAS) a processos cognitivos e a comportamentos de segurança. **Método:** Participou deste estudo uma amostra de 155 universitários, de ambos os sexos, sem história prévia de tratamento psiquiátrico, distribuídos em dois grupos (80 casos de TAS e 75 não casos), avaliados sistematicamente pelo Inventário de Fobia Social (SPIN) e pela Entrevista Clínica Estruturada para o DSM-IV (SCID-IV), como recurso de confirmação diagnóstica e exclusão de outros transtornos psiquiátricos. **Resultados:** A ECSAS apresentou consistência interna medida pelo alfa de Cronbach de 0,92, e com base no método de teste e reteste, com intervalo de duas semanas, atingiu níveis satisfatórios de estabilidade temporal, com Kappa ponderado de 0,73. Quanto à validade discriminante, apresentou valores de sensibilidade de

0,963 e de especificidade de 1. Na validade convergente apresentou correlação (r) de 0,60. **Conclusão:** A ECSAS apresentou boas características psicométricas, contribuindo para a avaliação sistemática dos padrões de comportamentos de segurança e evitativos, associados ao TAS.

Introduction

Social anxiety disorder (SAD) or social phobia usually starts at the beginning of adolescence and follows a chronic course, with a high proportion of comorbidities, thus being considered to be and important, though under-recognized and underdiagnosed, public health problem[1-3].

SAD is characterized by a strong and persistent fear of social interaction or performance situations in which an individual is afraid to be ashamed or embarrassed, with the central characteristic being the fear of being observed and/or judged by another person[4]. The main fears are related to exposure, i.e., to appear ridiculous, to say stupid things, to be observed by other persons, to interact with strangers or persons of the opposite sex, to be the center of attention, to eat, drink or write in public, to speak on the telephone, and to use public restrooms[5].

As proposed by Clark and Wells[6], from the theoretical perspective of cognitive models, when a person with SAD faces a social situation, a set of representations is activated, producing anxiety. According to this model, persons with social phobia, when in contact with social situations, establish avoidance strategies in order to cope with these situations, which are perceived as a source of danger. The use of avoidance strategies produces a vicious cycle (anxiety/avoidance/more anxiety) that can contribute to the maintenance of the disorder[7].

Subjects with social phobia tend to be more critical about themselves and tend to assess situations as having more negative components[8-9].

To reduce the perception of a threat in view of the anticipated risk of being evaluated in a negative manner, subjects with SAD use strategies for the avoidance of situations of social anxiety, expressed as safety behaviors. The use of safety behaviors increases the failure of cognitive processing, which tends to distort the assessment of interpersonal experiences, with the persistence of negative thoughts about oneself, one's experiences and one's possibilities in the future. In a selective manner, these behaviors are characterized by the search for evidence that will reaffirm one's negative view of oneself, reinforcing beliefs and maintaining the cognitive, behavioral and physiological behaviors. In this respect, safety behavior reflects systematic errors of cognitive processing favoring the maintenance of social anxiety[7,10,11].

Several studies have dealt with these distorted beliefs and their role in the maintenance of social phobia. Empirical studies[9,12,13] have reported the association of negative beliefs with a negative self-perception and with increased social anxiety.

Instruments for the assessment of the negative beliefs associated with SAD have been proposed in the literature[10,14]. Turner et al.[14] proposed the Social Thoughts and Beliefs Scale for the identification of the presence of negative thoughts and of cognitive changes associated with SAD in comparison with other psychiatric disorders and reported positive indicators of reliability and discriminant validity of the instrument.

Pinto-Gouveia et al.[10] proposed the Social Interaction and Performance Anxiety and Avoidance Scale (SIPA-AS) for the assessment of discomfort and avoidance in social situations and the Social Phobia Safety Behaviours Scale (SPSBS) for the assessment of the safety behaviors used by persons with social phobia when facing feared social situations. Regarding the psychometric qualities of the two scales, good test-retest reliability and positive indices of discriminant validity were observed in the discrimination between subjects with SAD and persons without the disorder.

The systematic identification of safety behaviors and of negative thoughts present in SAD by means of specific instruments may favor the diagnosis and treatment of social anxiety. Elucidating the degree of discomfort experienced in social situations is considered to be useful for the implementation of intervention procedures that take into account the behavioral aspects present in interactions and in performance situations. No validated instruments are available in Brazil for the assessment of these specific aspects.

Regarding SAD, systematic reviews in the literatures Osório et al.[15] have pointed to the diversity of instruments available, including some which are widely known and used in experimental clinical studies, especially those which evaluate symptomatological aspects of SAD. In this sense, it is considered that more studies with accurate and validated instruments may contribute to the clinical practice and for other systematic studies on SAD. In our context, the lack is noticed of validated instruments of Brazilian Portuguese which approach the different types of difficulties shown by people with

SAD, namely, the evaluation of specific aspects such as public speaking and the safety behaviours. It is, thus, necessary to improve the stydies of validation and reliability, which may contribute to the diagnosis, for the planning and evaluation of efficacy of therapeutical approaches of SAD[16].

On this basis, the objective of the present study was to assess the reliability and validity of the Social Phobia Safety Behaviours Scale proposed by Pinto-Gouveia et al.[10], after its semantic adaptation to Brazilian Portuguese.

Methods

Participants

The study sample derives from a broader investigation aiming at the assessment of the clinical and epidemiological aspects associated with SAD using instruments applied to university students enrolled in different undergraduate courses at two universities, a public one and a private one, located in medium-sized cities in the Northeast region of the state of São Paulo, Brazil.

A total of 155 subjects of both genders were divided into two groups:

a) case group – consisting of 80 university students with SAD, with no previous psychotherapeutic or pharmacological treatment, whose diagnosis was based on positive indicators of such disorder in a screening instrument (Mini-SPIN) and confirmed by the SCID-IV;

b) non-case group – consisting of 75 university students who did not fulfill the criteria for a diagnosis of SAD or of other psychiatric disorders, systematically assessed by means of a social phobia screening inventory (Mini-SPIN), with confirmation of the absence of a diagnosis of a psychiatric disorder by means of the SCID-IV.

The subjects included in the present study were selected from a sample of 372 students from the two universities, 178 of whom fulfilled the diagnostic criteria of SAD, while 194 did not. It is, thus, a sample of convenience which does not reflect the incidence of SAD in the sample that was evaluated. Of these, 95 did not accept to continue in the study, 73 were not located after three attempts of contact by telephone and e-mail, 26 filled out the instrument in an incorrect manner, and 23 presented comorbidities, with the final sample thus consisting of 155 subjects.

The inclusion criterion was adults of both genders aged 17 to 35 years regardless of socioeconomic level and the exclusion criteria were subjects taking neuroleptics and having current or previous psychiatric comorbidities, eating disorders, recurrent depressive disorders, and dependence on psychoactive substances. Participants with a history of episodes of depression, of generalized anxiety disorder and simple phobia were accepted for inclusion in the study in view of the high prevalence of the association of these comorbidities with SAD[17].

Instruments

Social Phobia Inventory (SPIN) proposed by Connor et. al.[18] and translated and adapted to Brazilian Portuguese by Osório et al.[15] for the university population. The instrument presented good psychometric qualities in both the original study and in the study conducted in Brazil, with internal consistency of 0.90 and good discriminant validity in the identification of cases and non-cases (0.96 sensitivity and 0.87 specificity) according to data reported by Osório et al.[15]

Mini-SPIN (MS) is a brief form of the SPIN proposed by Connor et al.[18] and translated and adapted to Brazilian Portuguese by Osório et al.[16]. It is a self-applicable inventory consisting of three items (items 6, 9 and 15) that assess avoidance and fear of embarrassment. This brief form demonstrated good discriminant power in both the original psychometric study and in the study conducted in Brazil, with 0.46 specificity and 0.94 sensitivity.

Structured Clinical Interview for the DSM-IV (SCID-IV), translated and adapted to Portuguese by Del-Ben et al.[19]. It is an instrument used to form psychiatric clinical diagnosis based on DSM-IV.

Social Phobia Safety Behaviours Scale (SPSBS) – proposed by Pinto-Gouveia et al.[10] and called Safety Behavior in Social Anxiety Scale (ECSAS in the Portuguese acronym). Its objective is to assess a set of safety behaviors that subjects with social anxiety use when facing social situations so as to prevent possible negative evaluations attributed to others. The version contains 17 items on a Likert-type scale scored from one to four, corresponding to "never", "at times", "many times", and "almost always". The score of the scale is obtained by the sum of the responses to the 17 items and the total score ranges from 17 to 68 points. In the current study, we used the version in Portuguese of Portugal provided by the author.

The study was approved by the Research Ethics Committee of the Faculty of Medicine of Ribeirão Preto, University of São Paulo (CEP/SPC 11570/2003).

Procedure

Adaptation of the Safety Behavior in Social Anxiety Scale

After authorization by the authors, the scale was modified semantically for adaptation to Brazilian Portuguese. Three raters who dominated the Portuguese of Portugal were asked to assess the scale independently, with priority being given in the final version to a colloquial vocabulary with which the target population, university students, would feel familiar.

Selection of the participants

After explanation of the objectives of the study, the university students who accepted to enter the study on a voluntary basis gave written informed consent to participate. The students who did not accept to participate were dismissed, having it clear that there were no consequences and that the participation was voluntary.

In a first stage, 372 university students were collectively assessed in a classroom in order to obtain clinical and demographic data. The score of the Mini-SPIN proposed by Connor et al.[18] and translated and adapted to Brazilian Portuguese by Osório et al.[16] was used to select the participants. On the basis of the results obtained with this instrument, participants who fulfilled the criteria for SAD (a score of 6 or more) were selected for inter-group comparison and participants with similar demographic characteristics with a negative result for SAD (a score of less than 6) were also included.

In a second phase, the participants were contacted by telephone and responded to the SCID-IV (module F), which was used as the gold standard, for the diagnostic confirmation of SAD. These subjects were assessed by a psychiatrist and a psychologist with vast clinical experience.

Based on the concordance of the Mini-Spin and SCID-IV assessments, a sample containing the possible participants was assembled in a third stage in order to confirm the presence or absence of SAD. The participants were contacted by phone and responded to all SCID-IV modules. The interviews were conducted by mental health professionals who were unaware of the previous classification of the subjects in order to confirm the diagnosis and to exclude other psychiatric comorbidities. In a subgroup of positive and negative MS subjects, we found a degree of concordance between the first and the second telephone interview of 0.80, with the overall concordance between the first telephone interview and the face-to-face interview being 0.84, a benchmark indication of an excellent[20] level of agreement[21].

This stage was concluded with the scheduling of a new assessment of the subjects who agreed to participate in the actual study.

Data collection for the study

The selected participants were assessed in small groups of three to five persons in rooms with appropriate privacy conditions. They received the printed instrument containing instructions and the rater remained present during application in order to clarify any possible doubts or questions.

The same conditions of collective assessment and the same instructions were used for the test-retest, with a 15 day interval, which was considered to be reasonable in view of the fact that the type of variable involved is little related to memory.

All the participants included in the study took part in two evaluations. In case of absence, the sessions were rescheduled within a period of 20 days.

Statistical analysis

The data obtained in the present study were analyzed statistically using the SPSS for Windows software, version 10[22].

The demographic and clinical data were analyzed by descriptive statistics and by the chi-square and Mann-Whitney tests for group comparison.

Reliability was determined by the Cronbach alpha and by the weighted Kappa for test-retest evaluations separated by a two-week interval.

The ROC curve analysis was used to determine the discriminant validity, sensitivity and specificity of the Safety Behavior Scale. Convergent validity was calculated by the Pearson correlation coefficient between the individual and total scores of the Safety Behavior Scale and the SPIN score. The level of significance was set at $p \leq 0.05$ in all analyses.

Results

Characteristics of the sample

The sociodemographic characterization of the sample showed a predominance of female gender in both groups (63.2%). Mean age was 20.9 ± 2.21 years (range: 17 to 21 years) and most students (74.2%) were enrolled in the first and second year of the courses, with no difference between the public and private university under study. Most students were enrolled in the area of Biological Sciences, followed by Exact Sciences, and most were full-time students, with no other occupational activities. Twenty-five percent of the students reported the use of medication, the most frequent being contraceptives, vitamin complexes, and anti-inflammatory and anti-allergic agents. When the case and non-case groups were compared by the chi-square test, no significant differences were observed regarding sociodemographic or clinical variables, indicating that the two groups were comparable.

Scores for Scale Items

ECSAS scores, reported as means $\pm$ SD for cases and non-cases of SAD, are presented in table 1.

There was similarity in the ordering of the items with highest mean scores. Group comparison revealed significant differences as to the total score in 16 of the 17 items of the scale. In all statistically significant comparisons, the SAD Case group presented higher values than the SAD non-case group. Regarding the only item for which no significant difference was observed (item 10: "*Putting one's hands in one's pocket*"), the value tended to be higher (p 0.08) for the case group. It should be

Table 1. Distributions of the items of the Safety Behavior Scale (ECSAS) as a function of the mean and standard deviation in a sample of cases and non-cases of SAD.

Item	Case (N = 80)		Not case (N = 75)			
	M	**MP**	**M**	**MP**	**z**	**p***
1. Shifting away from or avoiding the gaze of the person with whom I am interacting	2.48	0.89	1.83	0.69	-4.75	0.00
2. Accelerating the discourse, speaking rapidly and without pauses	2.49	0.91	1.85	0.77	-4.46	0.00
3. Shortening the discourse, reducing to a minimum what I have to say	2.80	0.97	1.87	0.89	-5.67	0.00
4. Avoiding attracting attention	3.19	0.90	2.03	0.90	-6.77	0.00
5. Sitting in most hidden place or in the place most at the back	2.59	0.96	1.53	0.72	-6.78	0.00
6. Pretending lack of interest or distance from what is happening	2.10	0.84	1.60	0.66	-384	0.00
7. Limiting myself to being a passive spectator of the situation	2.84	0.85	1.87	0.74	-6.67	0.00
8. Pretending that I did not see a person	2.51	0.84	1.88	0.70	-4.79	0.00
9. Walking while looking down at the floor	2.44	0.90	1.67	0.78	-5.44	0.00
10. Putting my hands in my pockets	2.38	0.97	1.99	0.81	-2.52	0.08
11. Stopping what I am doing (e.g.: writing, drinking etc.) when I fee that I am being watched	2.45	1.10	1.43	0.60	-6.04	0.00
12. Trying to look at ease	2.71	0.83	1.93	0.81	-5.42	0.00
13. Laughing to hide the fact that you are nervous	2.49	0.94	1.84	0.87	-4.34	0.00
14. Verifying repeatedly if I am presentable	2.61	0.99	1.91	0.74	-4.44	0.00
15. Increasing the distance between myself and my interlocutor	2.31	0.94	1.43	0.57	-6.11	0.00
16. Trying to disguise my fear	2.76	0.92	1.72	0.78	-6.62	0.00
17. Thinking well about what I am going to say	3.21	0.87	2.45	0.76	-5.39	0.00

*Mann-Whitney Test; M = mean; SD = standard deviation; * p < 0.05.*

pointed out that, the higher the score, the greater the presence of safety behavior.

Reliability

The internal consistency of the ECSAS, calculated by the Cronbach alpha for the scale as a whole, was $\alpha = 0.92$.

The analysis of correlation of each item with the total score reveals that all the items presented positive values of correlation in case they were removed from the instrument, and that its internal consistency would not be reduced.

Based on the test-retest comparison for the total scale score, the weighted Kappa value was 0.73, corresponding to a satisfactory rate of concordance[20]. Concerning the items, ten of them presented excellent concordance and seven satisfactory concordance, with item 10 ("*Putting one's hands in one's pocket*") showing the lowest level of concordance (0.41), which, however, was still considered to be satisfactory[20].

Validity

ROC analysis was performed in order to obtain the profile of discrimination of the ECSAS within all cut-off possibilities, and the curve is illustrated in figure 1.
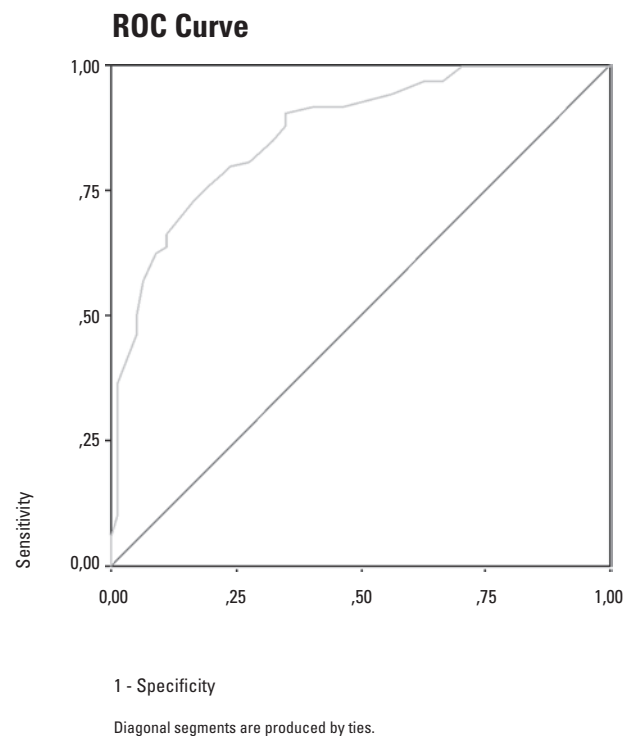

ROC Curve

1 - Specificity

Diagonal segments are produced by ties.

Figure 1. ROC curve of the Safety Behavior Scale (ECSAS).

Using a clinical interview (SCID-IV) as the gold standard, the area under the ROC curve was found to be 0.871, with a standard error of 0.028 for the 95% confidence interval, with estimated sensitivity of 0.963 and specificity of 1 (p < 0.001).

When the cut-off note (36) proposed in the original study by Pinto-Gouveia et al.[10] was applied, almost all 80 participants in the case group satisfied this criterion and only three participants in the non-case group had a score equal to or higher than this value. The cut-off notes of 36 and 37 were found to be those that best equilibrated the diagnostic efficiency, with respective sensitivity of 0.81 and 0.78, specificity of 0.76 and 0.79, PPV of 0.78 and 0.79, NPV of 0.74 and 0.77, and an incorrect classification rate of 0.21 and 0.22.

The correlation of the ECSAS total score with the total SPIN score was 0.60, which is considered to be satisfactory[23].

The correlations of the ECSAS items with the total score for the SPIN[16] ranged from 0.11 to 0.47, with significant correlations being observed for 16 ECSAS items. Only item 10 ("*Putting one's hands in one's pockets*") was not significantly correlated with the total score for the SPIN.

Sixteen ECSAS items were significantly correlated with the SPIN items, with the highest correlation being observed between item 7 of the ECSAS and item 11 of the SPIN ("*I avoid speaking to an audience or making speeches – e.g. presentations in the classroom*").

Analysis of the correlations between items revealed that the larger number of correlations of the ECSAS occurred with the three SPIN items that constitute the Mini-SPIN (6, 9 and 15).

Seven items of the ECSAS (1, 6, 8, 12, 13, 16 and 17) were found to be more correlated with item 6 of the SPIN/MS ("*I avoid doing things with or talking to certain persons for fear of being ashamed*"). Similarly, seven items of the ECSAS (2, 3, 4, 9, 11, 14 and 15) were more correlated with item 9 of the SPIN/MS ("*I avoid activities in which I am the center of attention*"). Only the items 5, 6 and 8 of ECSAS were more correlated with item 15 of the SPIN/MS ("*Being ashamed or looking silly are my greatest fears*").

Discussion

Subjects with SAD had total ECSAS scores significantly higher than the group without such psychiatric disorder, characterizing the presence of more safety behaviors which express attempts at masking the discomfort in the presence of social situations as a form of self-control, in agreement with the propositions of Clark and Wells[6].

The presence of more safety behaviors and avoidance of social situations in the group Case of SAD suggests the adaptative effort made by affected subjects when facing the anxiety raised by social situations, in agreement with literature reports[7,9,11-13].

Regarding the psychometric qualities of the EC-SAS, a satisfactory internal consistency was detected by the Cronbach alpha and by the test-retest method, with the correlations showing positive indications in terms of temporal stability. These data are similar to those reported in the original study by Pinto-Gouveia et al.[10], suggesting the presence of stability in the use of safety behavior strategies and the reliability of the instrument.

Analysis of discriminant validity revealed that the ECSAS had adequate sensitivity and specificity in identifying subjects with SAD compared to the gold standard instrument (SCID-IV). In view of its peculiarities regarding the assessment of negative thoughts and of cognitive alterations associated with SAD, as proposed by Pinto-Gouveia et al.[10] and Turner et al.[14], the scale can be considered adequate for the assessment of these variables in the Brazilian population.

For the analysis of the concurrent validity of the ECSAS, in view of the lack of another specific tested instrument for the assessment of safety behaviors, it was decided to correlate the ECSAS scores with those of the SPIN. Significant correlations were obtained for the total score and for the items of the ECSAS, confirming the original study of Pinto-Gouveia et al.[10] which detected a moderate correlation when comparing the instrument with scales for the assessment of social anxiety. We emphasize that in the present study the most significant correlations were observed between the items of the ECSAS and the brief form of the SPIN (Mini-SPIN), suggesting the association of the behavioral pattern of looking for safety and avoiding social situations with the typical manifestations of SAD regarding the fear of being ashamed, fear of being the center of attention, and fear of being exposed to humiliation, in agreement with recent literature reports[5,8,9].

As to the limits of the study, the specificity stands out of the sample which came exclusively from two cities of São Paulo mid-state, as well as the number of participants who ceased the participation in the course of the study, which may suggest that the remaining ones had less difficulty. A significant number of subjects abandoned the study during the process to select the participants. This fact may be associated with one of the core characteristics of SAD which reflects the fear of being observed and/or judged in situations of performance by other people. Such anticipated abandonment, in its turn, may have interfered in the profile of the sample which was evaluated, in terms of being characterised by individuals with less severe clinical manifestations of SAD.

Conclusion

With appropriate inclusion and exclusion criteria, the present study permitted the validation of a scale for the assessment of safety behaviors of Brazilian university

students in social situations, identifying the discomfort experienced and the avoidance strategies used by subjects with SAD. The ECSAS showed positive psychometric indicators regarding reliability, demonstrating stability of behavioral patterns, good indicators of discriminant validity with the structured clinical interview, and good convergent validity with an inventory of SAD symptoms. These results suggest an association of safety and avoidance behaviors with the symptomatic manifestations of SAD, characterizing the involvement of cognitions associated with social anxiety. Future studies assessing the predictive validity of the ECSAS regarding psychotherapeutic and/or pharmacological treatment of SAD in clinical samples appear to be necessary and opportune.

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