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Social anxiety disorder: what are we losing with the current diagnostic criteria?

Filho AS, Hetem LAB, Ferrari MCF, Trzesniak C, Martín-Santos R, Borduqui T, de Lima Osório F, Loureiro SR, Busatto Filho G, Zuardi AW, Crippa JAS. Social anxiety disorder: what are we losing with the current diagnostic criteria?

Objective: To assess the rate of comorbidities and the functional impairment associated with the social anxiety disorder (SAD), with an emphasis on the so-called subthreshold clinical signs and symptoms.
Method: Psychiatric comorbidities and psychosocial functioning were evaluated in 355 volunteers (college students) who had been diagnosed as SAD ($n = 141$), Subthreshold SAD ($n = 92$) or Controls ($n = 122$).
Results: The rate of comorbidities was 71.6% in the SAD group and 50% in subjects with Subthreshold SAD, both significantly greater than Controls (28.7%). Concerning psychosocial functioning, the SAD group had higher impairment than the other two groups in all domains evaluated, and subjects with Subthreshold SAD presented intermediate values.
Conclusion: The rates of psychiatric comorbidities and the impairment of psychosocial functioning increase progressively along the spectrum of social anxiety. The fact that Subthreshold SAD causes considerable disability and suffering in comparison with control subjects justifies a review of the validity of the diagnostic criteria.

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Key words: social anxiety; diagnosis; psychosocial impairment; comorbidity; prevalence; college students

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Significant outcomes

- The prevalence of comorbidities and the psychosocial impairment have 'dose-dependent' values through the social anxiety disorder (SAD) spectrum.
- The Subthreshold SAD demonstrates intermediate characteristics between the SAD and control group.
- It is necessary to revise, in a judicious manner, the validity of the current criteria of suffering and of functional impairment of the DSM-IV.

Limitations

- Only DSM-IV axis I comorbidities were considered.
- Premorbid psychiatric history of subjects was not taken into account.
- Sample constituted only by young adults (college students).

Introduction

Social anxiety disorder (SAD), according DSM-IV definition, is characterized by a marked and persistent fear of one or more social or performance situations in which the person is exposed to unfamiliar people or possible scrutiny by others. Several epidemiologic studies suggest that SAD is among the most common anxiety disorders, with a 12-month prevalence ranging from 7% to 10% (1–4).

Due mainly to its early onset (childhood and adolescence in most cases) but also to its pervasive nature, SAD impairs educational progress and interpersonal competencies, consequently limiting professional development (5). Clinical and community studies have shown that SAD can be highly incapacitating, causing a considerable amount of suffering and having a negative impact on psychosocial performance in terms of worse performance in school and on the job, increased risk to drop out of school early, reduced social interaction, and dissatisfaction with leisure activities and income (6–12).

Although the condition is very common and causes a considerable amount of suffering, the vast majority of patients with SAD do not seek medical attention because they do not perceive their condition as a psychiatric or emotional disorder (5, 13). Furthermore, about 80% of the patients with SAD will develop additional psychiatric disorders, notably depression, anxiety and drug-related disorders (13–16).

Current knowledge about the presence of comorbidities and of impaired psychosocial functioning in SAD has been obtained almost completely on the basis of the diagnostic limits established by the diagnostic and classification systems currently in use (14). However, some authors have proposed a dimensional approach to the classification of SAD within a *continuum* of symptom severity, degree of avoidance, suffering and impairment rather than as a category (arbitrarily defined) which could be more valid (2, 17). From this point of view, a better understanding of the extension of functional disabilities and the occurrence of comorbidities according to SAD severity and subtypes (9, 16, 18, 19) and, even more importantly, in those individuals with Subthreshold SAD (6, 8, 17), is crucial for a better understanding of the condition, although there are few scientific investigations involving these groups. The demonstration that individuals with subthreshold signs and symptoms of the disorder show prominent comorbidities and significant psychosocial impairment is highly relevant as it may reveal the need for greater care, raise the necessity of a re-evaluation of the current diagnostic criteria, and confirm the greater usefulness of a dimensional classification approach to SAD and social anxiety. On these lines, community studies support the theory that the boundaries of SAD would be better determined by a distinction of severity than by qualitative questions (4, 9, 20, 21).

Aims of the study

This article will describe data on the characteristics of the occurrence of SAD in a population of college students, the rate of comorbidities and the functional impairment associated with this disorder, with an emphasis on the so-called subsyndromal or subthreshold clinical signs and symptoms. Further steps will also be presented for the validation of the dimensional view of SAD, with the progressive increase in comorbidity rates and functional impairment as a function of the severity of social anxiety signs and symptoms.

Material and methods

The present study is part of a larger research project regarding SAD among college students, including evaluation of the prevalence of comorbidities, impairment in psychosocial functioning, mitral valve prolapse and neuroimaging. All subjects received a complete description of the study and provided written informed consent before undergoing any procedure. The research protocol was approved by the Ethics Committee of the University of São Paulo (no. HCRP 11570/2003).

Participants

A total of 2319 college students (University of São Paulo, campus of Ribeirão Preto, University of Franca, Brazil) were enrolled in the study. The participants were screened using the Brazilian Portuguese version (22) of the Social Phobia Inventory (SPIN, 23), from which a brief version (MINI-SPIN) consisting of items 6, 9 and 15 of the original scale is derived, being considered a good screening test for SAD (24). This procedure was accomplished in the classrooms and 11.2% of the subjects were excluded because they refused to participate or did not fill in the questionnaires.

Of the initial sample, 473 (20.4%) were considered MINI-SPIN positive for SAD. One hundred more subjects with negative MINI-SPIN were included with the objective of preservation of the blind condition of researchers. They were randomly selected to be interviewed by telephone using the Portuguese version of the SAD module of the SCID-IV–patient edition (25) to diagnose SAD based on DSM-IV criteria (26) by three researchers with experience in the use of this instrument. Telephone and face-to-face interviews were shown to have excellent agreement (kappa = 0.84; 27). In this study phase of data collection 10.6% of the subjects were not localized or refused to participate.

Three psychiatrists who did not participate in the previous evaluations and therefore were 'blind' to the diagnosis of the subjects, randomly re-interviewed 355 of the original participants by

telephone (from August 2005 to March 2006) using all modules of SCID-IV, except the SAD module. At that point, subjects did not know the MINI-SPIN score or the result of the first diagnostic interview.

Study groups

The subjects interviewed were divided into three groups according to the presence or absence of SAD and, in those presenting with the disorder, to severity. The first was composed of 141 subjects with SAD, generalized or not. The second group consisted of 92 subjects with Subthreshold SAD, presenting with an unreasonable fear of a social situation but not meeting the criteria for specific avoidance or impairment due to this fear (28). In other words, these subjects were MINI-SPIN positive for SAD but did not fulfil criteria D and E of the DSM-IV for SAD. The third was the control group consisting of 122 college students who did not have a diagnosis of SAD or of Subthreshold SAD.

Rating scales

The severity of SAD was assessed using four instruments.

i) *Social Phobia Inventory* – SPIN (22, 23). The SPIN is a self-assessment scale consisting of 17 items regarding fear, avoidance and physiological symptoms in a variety of social situations. Each item is scored from 0 (nothing) to 4 (extremely) and the total score of the scale ranges from 0 to 68. The psychometric properties of the SPIN have been reported to be adequate both for normal controls and for psychiatric patients with and without SAD when using either the original version or the translation (23, 24).
ii) *Brief Social Phobia Scale* – BSPS (29, 30). The BSPS is a hetero-assessment scale for SAD consisting of 18 items. It contains seven situations of social anxiety that assess separately fear and avoidance with levels of severity ranging from 0 (none/never) to 4 (extreme/always – 100%). In addition, it contains a subscale with four items for the assessment of physiological symptoms.
iii) *Liebowitz Social Anxiety Scale* – LSAS (31). The LSAS is characterized by the assessment of performance and social interaction situations which individuals with SAD tend to avoid or to fear. It consists of 24 items divided into two subscales: social interaction (11 items) and performance (13 items) and being scored separately for avoidance and fear/anxiety of each item. Its psychometric qualities have been extensively studied, showing adequate validity and reliability indicators (32). The self-rating version of the scale was used in the present study.
iv) *Beck Anxiety Inventory* – BAI (33, 34). The BAI is a self-administered instrument consisting of 21 items that assess trait anxiety symptoms on a 4-point scale. Originally created for use with psychiatric patients, the instrument proved to be adequate for use in the general population. In Brazil, it was used in a normative study of psychiatric and non-psychiatric patients, including college students (34).

Three scales were used to assess impairment of psychosocial functioning.

i) *Disability Profile* – DP (10). The instrument is to be administered by a clinician and contains items in eight domains that assess the disabilities or impairments experienced by the subjects as a consequence of the current presence of SAD and during the worst lifetime impairment. Each DP item is scored from 0 (no impairment) to 4 (severe impairment). The scores of the items can be summed in order to obtain the total score for current and lifetime impairment or can be considered individually in order to provide information about the pattern of impairment through the domains (10).
ii) *Liebowitz Self-Rating Disability Scale* – LSRDS (10). The LSRDS is a self-assessment instrument developed to assess the disabilities or impairments experienced during the worst lifetime phase or current as a consequence of the presence of SAD. The scale consists of 11 domains and the items are scored on a Likert-type scale where the disabilities or impairments are scored from 0 (in the absence of a limit associated with SAD) to 3 (in the assessment of a serious limit associated with SAD).
iii) *General Health Questionnaire-12* – GHQ-12 (35). The GHQ-12 is a self-assessment instrument developed for identifying psychiatric illness in patients from general clinical practice which consists of 12 items. Each item on the scale is scored on a 4-point scale ranging from 'less than usual' to 'more than usual' and a higher score indicates a greater degree of psychological distress. It is one of the instruments most frequently used to assess psycho-

logical well-being, especially in occupational studies (36).

Socioeconomic class was determined by using the Socioeconomic Classification Criterion of Brazil (CCSEB, 1997) based on the 1996 Socioeconomic Survey.

Statistical analysis

The psychiatric comorbidity data were analyzed statistically by the chi-squared test on the basis of the presence of comorbidity (yes/no). Clinical and demographic data were also analysed by ANOVA for continuous data and by the chi-squared test for nominal data. The three groups were compared regarding anxiety and psychosocial functioning measured by the different rating scales by means of multivariate analysis of variance (MANOVA). Duncan's *post hoc* comparisons were used when significant main effect were present.

The statistical analyses were performed using the SPSS statistical package version 13.0 (SSPS Incorporation, 2004), with the level of significance set at $P \leq 0.05$.

Results

The three groups were balanced in terms of age, sex, socioeconomic level and schooling, as shown in Table 1. Regarding marital status, the subjects with SAD presented a lower frequency of stable relationships (marriage or dating) than controls at the time of assessment. About one fifth of the participants held a job while studying in college, with no difference between groups. This can be explained by the fact that many of the subjects were full-time students.

In addition, subjects with SAD used significantly more psychotropic medication than the remaining groups (SAD 12.8%, Subclinical SAD 2.2% and Control 1.7%). Smoking frequency was lower in the Subthreshold SAD group (2.2%) as compared to the Control (9.0%) group. The SAD group (7.1%) did not show statistically relevant differences in comparison with the other groups.

Table 1. Clinical and demographic characteristics of the groups

Variables	SAD	Subthreshold SAD	Control
n	141	92	122
Mean age	22.33 (±5.1)	21.33 (±2.9)	21.43 (±3.6)
Sex (%)			
Women	98 (69.5)	63 (68.5)	75 (61.5)
Men	43 (30.5)	29 (31.5)	47 (38.5)
Marital status (%)			
Married	6 (4.3)	4 (4.3)	9 (7.4)
Dating	64 (45.4)	53 (57.6)	67 (54.9)
Single	71 (50.4)	35 (38.0)	46 (37.7)
Stable relationship (married + dating)	70 (49.6)*	57 (62.0)	76 (62.3)
Activity (%)			
Only studying	116 (82.3)	72 (78.3)	101 (82.8)
Working and studying	25 (17.7)	20 (21.7)	21 (17.2)
Use of psychotropic medication (%)	18 (12.8)*†	2 (2.2)	2 (1.7)
Smoking (%)	10 (7.1)	2 (2.2)*	11 (9.0)
Mean socioeconomic level	2.15	2.26	2.01

SAD, social anxiety disorder.
*$P < 0.05$ compared to the Control group.
†$P < 0.05$ compared to the Subthreshold SAD group.

Psychiatric comorbidities

As shown in Table 2, the occurrence of other psychiatric disorders was observed in 71.6% of the subjects with SAD and in 50% of the subjects with Subthreshold SAD, who differed significantly from controls, whose rate of additional diagnoses was 28.7%.

There was a higher frequency of comorbidity with mood disorders (SAD 53.9%, Subthreshold SAD 28.3% and Control 13.1%), followed by anxiety disorders (SAD 43.3%, Subthreshold SAD 27.2% and Control 15.6%). SAD presented with the highest prevalence in both groups, with intermediate values for the Subthreshold SAD group. Among the anxiety disorders, particularly important was the co-occurrence of specific phobias, generalized anxiety disorder and agoraphobia.

The prevalence of the use of substances assessed as a whole was higher in the SAD group. The main substance of abuse/dependence was alcohol, followed by cannabis. In contrast, there was a relatively low co-occurrence of eating and somatoform disorders, with no difference between groups.

Comorbidities varied depending on SAD subtypes (generalized SAD 75.3% and circumscribed SAD 67.2%) and severity (severe SAD 72.0%, moderate SAD 74.7% and mild SAD 60.0%). In all circumstances, however, the presence of other psychiatric disorders in subjects with Subthreshold SAD had intermediary values, between controls and less severe forms of SAD (circumscribed and mild cases).

Anxiety scales

As expected, subjects with SAD presented higher scores than Controls and Subthreshold SAD subjects on all anxiety scales and subscales, indicating a higher level and severity of symptoms and of impairment (Table 3). Subjects with Subthreshold SAD presented intermediate values, with signifi-

Table 2. Lifetime prevalence of psychiatric comorbidities in the three groups

	SAD (n = 141)			Subthreshold SAD (n = 92)			Control (n = 122)
Other disorders	%	OR	95% CI	%	OR	95% CI	%
Any other disorder	71.6*†	6.28	3.67–10.73	50.0*	2.49	1.41–4.38	28.7
Mood disorders							
Major depression	48.9*†	6.35	3.41–11.81	26.1*	2.34	1.16–4.72	13.1
Dysthymia	6.4*†			1.1			0.0
Bipolar affective disorder	2.1			1.1			0.0
Any mood disorder	53.9*†	7.75	4.16–14.42	28.3*	2.61	1.30–5.23	13.1
Anxiety disorders							
Specific phobias	29.8*	3.03	1.58–5.80	21.7	1.98	0.95–4.12	12.3
Generalized anxiety disorder	17.7*†	8.55	2.51–29.09	5.4	2.28	0.53–9.80	2.5
Agoraphobia	6.4*			5.4*			0.0
Panic disorder	2.8	1.75	0.32–9.73	3.3	2.02	0.33–12.36	1.6
Posttraumatic stress disorder	3.5	2.21	0.42–11.58	2.2	1.33	0.18–9.65	1.6
Obsessive–compulsive disorder	2.8			0.0			0.0
Any anxiety disorder	43.3*†	4.13	2.29–7.47	27.2*	2.02	1.03–3.96	15.6
Use of substances							
Alcohol abuse/dependence	12.1†	2.25	0.90–5.63	3.3	0.55	0.14–2.20	5.7
Cannabis abuse/dependence	4.3	5.38	0.64–45.31	1.1	1.33	0.08–21.54	0.8
Abuse of other substances	2.8			0.0			0.0
Any substance disorder	14.9*†	2.49	1.06–5.86	3.3	0.48	0.12–1.86	6.6
Eating disorders							
Anorexia nervosa	1.4	1.74	0.16–19.44	0.0			0.8
Bulimia nervosa	2.1	1.30	0.21–7.94	0.0			1.6
Somatoform disorders							
Hypochondriac disorder	2.1			0.0			0.0
Body dysmorphic disorder	0.7	0.43	0.04–4.79	0.0			1.6

SAD, social anxiety disorder; OR, odds ratio (compared to the Control group).
*$P < 0.05$ compared to the Control group.
†$P < 0.05$ compared to the Subthreshold SAD group.

Table 3. Mean scores of the anxiety scales and subscales for subjects with SAD, Subthreshold SAD and Controls

	1 –SAD (n = 141)	2 – Subthreshold (n = 92)	3 – Controls (n = 122)	MANOVA F (d.f. = 2;225)	MANOVA P	Duncan *post hoc* test $P < 0.05$
SPIN						
Total	34.17	28.91	10.74	97.95	<0.001	1 > 2 > 3
To be observed	8.00	7.63	2.50	64.08	<0.001	1 > 2, 3
Physiological symptoms	7.89	6.34	2.83	51.90	<0.001	1 > 2 > 3
Social inferiority	2.86	2.60	0.84	36.34	<0.001	1 > 2, 3
Self-esteem	9.60	8.31	3.22	91.14	<0.001	1 > 2 > 3
Social inadequacy	5.81	4.03	1.34	46.38	<0.001	1 > 2 > 3
Liebowitz						
Total	69.92	53.57	23.23	99.47	<0.001	1 > 2 > 3
Fear	36.78	28.83	12.69	99.37	<0.001	1 > 2 > 3
Avoidance	33.14	24.74	10.54	85.88	<0.001	1 > 2 > 3
BSPS						
Total	32.77	24.86	10.78	111.23	<0.001	1 > 2 > 3
Fear	13.81	10.66	4.10	105.38	<0.001	1 > 2 > 3
Avoidance	13.90	11.11	5.23	92.07	<0.001	1 > 2 > 3
Physiological	5.05	3.09	1.44	42.04	<0.001	1 > 2 > 3
BAI						
Total	18.83	15.60	8.30	26.94	<0.001	1 > 2, 3
Neurophysiological	4.77	3.71	1.72	16.66	<0.001	1 > 2, 3
Subjective	7.33	6.23	3.57	22.88	<0.001	1 > 2, 3
Panic	2.88	1.97	0.98	19.44	<0.001	1 > 2 > 3
Autonomic	3.85	3.69	2.03	14.36	<0.001	1 > 2, 3

SAD, social anxiety disorder; SPIN, Social Phobia Inventory; BSPS, Brief Social Phobia Scale; BAI, Beck Anxiety Inventory.

cantly higher scores than Controls on almost all scales and subscales, whether self-applied (SPIN, LSAS and BAI) or hetero-applied (BSPS).

The difference in symptoms and in severity measured with the scales could be due to comorbidities with other psychiatric disorders, as the

pattern of distribution was similar to that of the scales, as shown in the comorbidity table (Table 2). In order to better understand this phenomenon, the total scores of the scales were re-evaluated by selecting in each group only the volunteers who did not present co-occurrence of other psychiatric disorders. In this case there was a small reduction in the mean value of most scores, although the differences between groups were maintained, with subjects with SAD and Subthreshold SAD presenting significantly higher scores than controls for almost all scales.

Impairment of psychosocial functioning

The results of the psychosocial functioning scales are shown in Table 4. Comparison of the three groups revealed a difference in GHQ-12, with greater impairment for SAD subjects.

With the DP scale, the SAD group presented higher lifetime and current scores for all items compared to both the Subthreshold SAD and the Control groups. The Subthreshold SAD group had intermediate values for all items, with a statistically significant difference compared to controls for total

Table 4. Mean scores of the psychosocial functioning assessed with the GHQ-12, DP and LSRDS scales, for subjects with SAD, Subthreshold SAD and Controls

					MANOVA		
		1 – SAD (n = 141)	2 – Subthreshold (n = 92)	3 – Controls (n = 122)	F (d.f.=2;225)	P	Duncan *post hoc* test $P < 0.05$
GHQ-12		27.85	25.11	22.9	14.23	<0.001	1 > 2, 3
DP							
Total	Current	8.53	3.84	1.34	65.39	<0.001	1 > 2 > 3
	Lifetime	12.24	6.71	3.11	79.17	<0.001	1 > 2 > 3
School	Current	1.20	0.45	0.11	50.83	<0.001	1 > 2 > 3
	Lifetime	1.58	0.76	0.38	54.76	<0.001	1 > 2 > 3
Work	Current	0.63	0.13	0.11	10.96	<0.001	1 > 2, 3
	Lifetime	0.90	0.45	0.21	13.59	<0.001	1 > 2, 3
Family	Current	1.15	0.53	0.26	21.55	<0.001	1 > 2, 3
	Lifetime	1.36	0.74	0.40	21.36	<0.001	1 > 2, 3
Marriage/dating	Current	1.58	0.68	0.31	32.50	<0.001	1 > 2, 3
	Lifetime	2.37	1.45	0.89	57.10	<0.001	1 > 2 > 3
Friendships	Current	1.45	0.74	0.23	44.91	<0.001	1 > 2 > 3
	Lifetime	2.01	1.24	0.54	55.15	<0.001	1 > 2 > 3
Other interests	Current	1.47	1.00	0.27	27.29	<0.001	1 > 2 > 3
	Lifetime	2.14	1.50	0.49	42.31	<0.001	1 > 2 > 3
Activities of daily living	Current	0.88	0.26	0.04	23.24	<0.001	1 > 2, 3
	Lifetime	1.33	0.37	0.18	28.74	<0.001	1 > 2, 3
Suicidal behaviour	Current	0.17	0.03	0.00	4.99	=0.008	1 > 2, 3
	Lifetime	0.55	0.21	0.02	13.07	<0.001	1 > 2, 3
LSRDS							
Total	Current	8.47	6.42	4.52	8.67	<0.001	1 > 2, 3
	Lifetime	13.16	9.05	6.21	25.26	<0.001	1 > 2 > 3
Moderation in alcohol use	Current	0.54	0.47	0.43	0.56	NS	–
	Lifetime	0.87	0.63	0.56	3.43	=0.034	1 = 2 = 3
Abstinence from drugs	Current	0.46	0.82	0.46	2.78	NS	–
	Lifetime	0.69	0.89	0.57	1.66	NS	–
Mood regulation	Current	1.26	0.87	0.51	14.53	<0.001	1 > 2 > 3
	Lifetime	1.54	1.05	0.62	21.86	<0.001	1 > 2 > 3
Education	Current	0.70	0.32	0.47	3.21	=0.042	1 > 2, 3
	Lifetime	1.02	0.47	0.62	5.69	=0.004	1 > 2, 3
Employment	Current	0.94	0.43	0.63	7.81	=0.001	1 > 2, 3
	Lifetime	1.26	0.84	0.59	11.01	<0.001	1 > 2, 3
Family relations	Current	0.95	0.63	0.60	3.62	=0.028	1 = 2 = 3
	Lifetime	1.30	0.87	0.82	5.99	=0.003	1 > 2, 3
Romantic relationships	Current	1.32	0.76	0.54	16.20	<0.001	1 > 2, 3
	Lifetime	1.92	1.18	0.80	35.52	<0.001	1 > 2 > 3
Social network	Current	0.81	0.63	0.30	7.77	=0.001	1, 2 > 3
	Lifetime	1.42	0.97	0.54	19.47	<0.001	1 > 2 > 3
Other interests	Current	0.84	0.66	0.31	8.88	<0.001	1, 2 > 3
	Lifetime	1.50	1.08	0.51	24.61	<0.001	1 > 2 > 3
Activities of daily living	Current	0.33	0.29	0.25	0.28	NS	–
	Lifetime	0.64	0.39	0.30	3.81	=0.023	1 > 2, 3
Desire to live	Current	0.31	0.34	0.22	0.57	NS	–
	Lifetime	0.99	0.66	0.29	13.49	<0.001	1, 2 > 3

GHQ-12, General Health Questionnaire-12; DP, Disability Profile; LSRDS, Liebowitz Self-Rating Disability Scale; SAD, social anxiety disorder.

score and subscales: school, friendships, other interests and marriage/dating lifetime. Also with the DP scale, more than half the volunteers with SAD presented at least moderate impairment due to the disorder at some time in their lives in the following domains: school, family, marriage/dating, friendships and other interests.

The results obtained with the LSRDS were similar to those obtained with the DP with the SAD group presenting higher lifetime and current scores compared to both Subthreshold SAD and Control groups, although with less marked differences between groups regarding some domains. Assessment of lifetime impairment revealed a difference in mean values between the three groups, with intermediate results for the Subthreshold SAD groups and with higher impairment score for the SAD group. Individual analysis of each domain revealed greater differences in the level of impairment between the three groups regarding mood regulation, employment, romantic relationships, social network and other interests. The SAD group presented greater lifetime impairment than Controls and subjects with Subthreshold SAD in almost all domains, except abstinence from drugs.

Regarding impairment of psychosocial functioning, when subjects are separated according to severity of the disorder, the DP scale revealed a progression of impairment from the controls to the Subthreshold SAD, mild SAD, moderate SAD and severe SAD subjects in the lifetime (scores 3.11, 6.71, 9.9, 12.4 and 15.1 respectively) and current values (scores 1.34, 3.84, 6.0, 8.69 and 11.67 respectively). When considering SAD subtypes, the same pattern of progression is observed in terms of deficits of psychosocial functioning, from Controls to Subthreshold SAD, followed by circumscribed and generalized SAD over a lifetime (scores 3.11, 6.71, 11.05 and 13.68 respectively) and current values (scores 1.34, 3.84, 7.35 and 10.0 respectively).

We may also assume that perhaps part of the impairment was due to the presence of other psychiatric disorders rather than simply of SAD. In view of this possibility, the mean value of scores of psychosocial functioning scales of subjects who did not present any comorbidity with other psychiatric disorders was investigated separately. As can be seen in Fig. 1, the presence of comorbidities was indeed associated with greater impairment of psychosocial functioning, both lifetime and current, within each group. However, the differences between groups were still significant when the results of the scales were compared only between the subjects in the three groups who did not present any other current or previous psychiatric disorder. Using the DP scale, the lifetime and current impairment of subjects without comorbidities was greater in SAD than in Subthreshold SAD, which, by its turn, was greater than in controls. Using the LSRDS scale, both the subjects with Subthreshold SAD and those with SAD without comorbidities presented greater lifetime and current impairment. The GHQ-12 scale revealed the same pattern of difference between groups (SAD 25.00, Subthreshold SAD 23.76 and Controls 22.39). Thus, regardless of the presence of comorbidities, the impairment of psychosocial functioning was greatest in the SAD group, followed by the Subthreshold SAD group.

Discussion

The results show that the rates of psychiatric comorbidities as well as the impairment of psychosocial functioning increase progressively along the spectrum of social anxiety. Despite the lesser severity of the Subthreshold SAD cases, they displayed a prominent degree of psychosocial impairment and elevated rates of other psychiatric disorders.

Regarding the psychiatric comorbidities, major depression was the most frequent comorbidity,

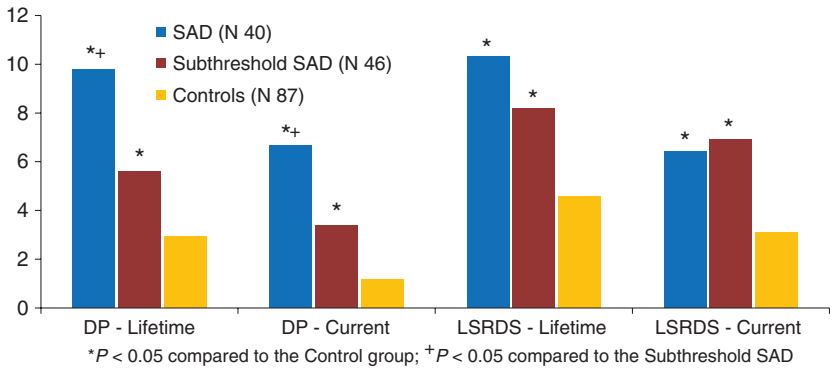

Fig. 1. Impairment of psychological functioning among the participants without comorbidities $^{*}P < 0.05$ compared to the Control group; $^{+}P < 0.05$ compared to the Subthreshold group.

followed by simple phobias and generalized anxiety disorder. Regarding substance-related disorders, comorbidity with alcohol abuse was significantly higher in the SAD group, but in general the prevalence was low in all groups. Probably this has to do with the study sample, composed only of college students. Regarding comorbidities, the presence of other psychiatric disorders was significantly higher in the Subthreshold SAD group compared with the controls. These results are in line with findings reported in other studies that assessed comorbidities in the spectrum of social anxiety (11, 14, 17).

It should be pointed out here that there is an important debate about the use of the term comorbidity to indicate the concomitance of two or more psychiatric diagnoses, as in many cases it is not clear whether the concomitant diagnoses reflect the presence of distinct clinical entities or multiple manifestations of a single one (37). This is in part the result of the proliferation of diagnostic categories in recent classifications, with a relative absence of hierarchical rules regarding the disorders. With the publication of the DSM-III-R, and its definition of mental disorders in a categorical rather than dimensional manner, it had the effect of making the diagnoses more operational but causing a compartmentalization of the disorders (37, 38). Indeed, the frequent co-occurrence of mental disorders may also be understood as evidence against the idea that these disorders represent distinct entities (38).

In the present study, the term comorbidity was used to indicate that the same individual met the criteria of SAD and of the co-occurrence of other psychiatric disorders as currently established. For the Subthreshold SAD and Control groups this definition is not suitable due to the fact that their components have no psychiatric disorder. In this case comorbidity just means co-occurrence of other psychiatric disorders.

The idea of a dimensional spectrum of SAD could be clearly demonstrated in this study by the results obtained in the anxiety scales: significantly higher scores for Subthreshold SAD compared with the Control group on almost all scales and subscales, denoting greater level of symptomatology. In the SAD group, as expected, scores were even higher than in the Subthreshold group. It is worth mentioning that these differences regarding the severity/suffering measured with the anxiety scales were not due to the comorbidities alone as indicated by the analysis performed only with subjects without other lifetime psychiatric comorbidities.

Regarding the values of the psychosocial functioning scales, the Subthreshold SAD showed higher scores than the Control group in two scales used, LSRDS and DP, reflecting in general the impairment generated by the symptoms of social anxiety. In the present study the Subthreshold SAD group differed from the control with respect to the impairment of psychosocial functioning even when the groups were controlled for the presence of comorbidities. These results are consistent with the findings of Fehm et al. (14) and at first glance seem to contradict the fact that in many subthreshold cases the DSM criterion for subjective impairment was missing. The SAD group, on the other hand, presented higher scores than the other two, strengthening the notion of a SAD spectrum.

The LSRDS and DP scores of all items were higher for the worst lifetime period than for the last 2 weeks, demonstrating the fluctuation of symptom presentation and of the impairment of psychosocial functioning over time. These findings may suggest that many subjects suffered more severe restrictions in the past and learned to live and cope at least in part with their disabilities (8). Other studies using the LSRDS and DP scales for the assessment of psychosocial functioning have also demonstrated that SAD affects many areas of life, in particular romantic relations, education, career and family relations and that the presence of previous or current comorbidities increases the frequency of specific impairment by the disease (8, 10).

When SAD is examined, taking into account the severity of the symptoms or according to its subtypes, a gradational increase in psychosocial disability and in psychiatric comorbidities prevalence can be observed from Controls to Subthresholds, followed by less severe presentations of SAD (circumscribed or mild cases) and, finally, generalized and severe SAD. The fact that the Subthreshold SAD group presents less comorbidities and limitations than mild or circumscribed SAD is consistent with that expected from the current diagnostic criteria once the Subthresholds are not considered as SAD. On the other hand, these subjects have significantly more disabilities and prevalence of other psychiatric disorders than Controls, making them an intermediate, preclinical group.

The results of the present study reinforce the notion that increased severity of social anxiety symptoms is associated with greater functional impairment and with an increased number of psychological problems (2, 13, 17, 21).

The question of the definition of mental disorders as categorical or dimensional has been

extensively discussed over the last few years, especially regarding mood, personality and obsessive–compulsive disorders (39–41). In the case of SAD there still is no single validated model for the definition of the spectrum of social anxiety (41–43). Indeed there is no clear or absolute cut-off point in order to establish when social anxiety becomes pathological. The limit is associated with the impairment and suffering created by a situation and this is one of the most important reasons for the wide variation in the prevalence of SAD among studies (4, 44). There is no consensus regarding the criteria for the definition of Subthreshold SAD, which represents individuals who present characteristics of SAD but do not fulfil all the diagnostic criteria. The classification in terms of spectrum may also reflect better the tendency of subjects with SAD to oscillate among SAD, Subthreshold SAD or a lifetime at limited symptom levels (12, 17). It could be argued that when a dimensional perspective is used instead of a categorical perspective one would find graded variation, but what these data show is that the diagnostic category SAD, as currently described, excludes patients presenting severe limitations in quality of life and at risk of complications of the disorder.

On the other hand, some argue that SAD, even by current diagnostic criteria, is already overdiagnosed in epidemiological studies (45) or that SAD represents the medicalization of shyness. Following this reasoning, the definition and inclusion of Subthreshold SAD diagnostic criteria would be the expansion of an already controversial category. Moreover, as sensitivity increases specificity diminishes, which could mean that to catch more subjects with SAD there would be a risk of including many who do not really have the disorder. The truth is that in our current state of knowledge there is always a trade-off when you shift the threshold for inclusion in a category. One way out of this risk could be to put more emphasis on suffering and limitations caused by the disorder as well as on capabilities to overcome them when making the diagnosis of SAD.

In any case, SAD syndromes below the diagnostic threshold seem to be indicators of psychopathology, impairment and disability, with important clinical implications regarding diagnosis, intervention and prevention. This clearly points to the necessary determination, in a judicious manner, if the current criteria of suffering and of functional impairment of the DSM-IV require a review of their validity (14, 46).

This study has some strengths worthy of note. Its sample was selected from the community, not undergoing any specific treatment, and balanced for age, gender, educational and socioeconomic levels. In addition, particular care was given to the maintenance of the 'blind' condition of the interviewers concerning the diagnosis of SAD as well as to the evaluation of comorbidities and psychosocial functional limitations. Methodological limitations were the consideration of DSM-IV axis I comorbidities only, the non-characterization of premorbid psychiatric history of subjects and the fact that the sample was constituted only by young adults (college students).

The present study confirms and extends previous findings about the rates of comorbidity and impairment of psychosocial functioning in SAD. Its most important result, however, is the fact that the prevalence of both comorbidities and psychosocial impairment has 'dose-dependent' values regarding the diagnosis, demonstrating that Subthreshold SAD, thus defined using current diagnostic criteria, does cause noteworthy impairment in psychosocial functioning and involves increased rates of comorbidity with other psychiatric disorders when compared with control subjects.

Declaration of interest

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