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THE BURDEN OF SOCIAL PHOBIA IN A BRAZILIAN COMMUNITY AND ITS RELATIONSHIP WITH SOCIOECONOMIC CIRCUMSTANCES, HEALTH STATUS AND USE OF HEALTH SERVICES: THE BAMBUÍ STUDY

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ABSTRACT

Aims: Social phobia in the environment of poverty and major social inequalities, as observed in most developing countries, has received little attention. This population-based study was carried out in a poor community in Brazil (15,000 inhabitants), aiming at determining the prevalence of social phobia and its associated factors.

Method: The Composite International Diagnostic Interview was applied in a random sample of 1037 residents aged $\geqslant$ 18 years.

Results: The 1-month, 1-year and lifetime prevalence of social phobia were 7.9, 9.1 and 11.8%, respectively. One-month social phobia was independently associated with age (45–64 years), marital status (divorced/separated), worse socioeconomic indicators (family income and education), number of months worked, worse health status and use of health services and medications.

Conclusion: There was an important burden of social phobia in the study community, due to its high prevalence (similar or superior to those observed in most developed countries), and due to its association with worse health status and use of health services and medications. The strong association between social phobia and socioeconomic circumstance, even in a small and poor community, is certainly a reflex of the major social inequalities in Brazil.

Key words: social phobia, epidemiology, prevalence, sociodemographic, social inequality, Brazil

INTRODUCTION

Social phobia or social anxiety disorder is a serious and disabling mental health problem (Magee *et al.*, 1996; Furmark, 2002) that begins before or during adolescence, has a chronic course, is associated with significant impairment in social functioning and work, and reduced quality of life (Furmark, 2002). In addition, social phobia has a high comorbidity rate (Furmark, 2002) and is rarely diagnosed and treated (Weiller *et al.*, 1996).

Studies carried out in developed countries have shown that social phobia is the third most common mental disorder, behind substance abuse and depression (Kessler *et al.*, 1994). Social

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phobia is most prevalent among women (Lee *et al.*, 1990a; Wittchen *et al.*, 1992; Degonda & Angst, 1993; Lindal & Stefansson, 1993; Lepine & Lellouch, 1995; Magee *et al.*, 1996; Offord *et al.*, 1996; Furmark *et al.*, 1999; Furmark, 2002), young adults (Schneier *et al.*, 1992; Magee *et al.*, 1996; Furmark, 2002) and among unmarried individuals (Schneier *et al.*, 1992; Davidson *et al.*, 1993; Magee *et al.*, 1996). Moreover, social phobia is associated with lower educational attainment (Schneier *et al.*, 1992; Stein *et al.*, 1994; Chapman *et al.*, 1995; Magee *et al.*, 1996) and lower socioeconomic status (Schneier *et al.*, 1992; Davidson *et al.*, 1994; Stein *et al.*, 1994; Furmark, 2002). When compared with persons with no psychiatric disorders, social phobia is associated with financial dependency (Schneier *et al.*, 1992). In this manner, it is a mental disorder associated with socioeconomic circumstances that has been recognized as a significant public health problem, with major consequences to the individual and society.

Community-based studies on social phobia in developing countries, or in more recently industrialized countries, are still rare (Canino *et al.*, 1987; Hwu *et al.*, 1989; Lee *et al.*, 1990a, 1990b; Caraveo-Anduaga & Colmenares, 2000; Abou-Saleh *et al.*, 2001; Andrews *et al.*, 2001), and further investigations are necessary to know about social phobia in an environment of poverty and major social inequalities, as observed in such countries. In developing countries, especially in Latin America, inequalities are more pronounced. Brazil and Paraguay are among the countries of major inequalities of the world (both with GINI index = 0.59 in 1996), being supplanted only by Nicaragua (GINI = 0.60) (Székely & Hilgert, 1999).

This paper presents the results of a population-based study on social phobia carried out in a small and poor community in Brazil. The main objectives of the study were to assess the prevalence of social phobia, and to examine its association with socioeconomic circumstances, health status and use of health services.

MATERIAL AND METHODS

Study community

This study is part of the Bambuí health survey, which is a population-based study carried out in Bambuí town (around 15,000 inhabitants), in the state of Minas Gerais, south-east Brazil. The economy in the study area is based on farming and commerce. In 1991, the Human Development Index in this community was 0.70, the life expectancy was 70.2 years and the infant mortality rate was 48.4 per 1000 live births. The town has 1 general hospital with 62 beds and an outpatient clinic with a 24-hour emergency room. There are no mental health services in this community. In 1996, there was 1 doctor per 1000 inhabitants in the town. The main causes of death for the population of Bambuí in 1996 were stroke, Chagas' disease, ischemic heart disease and pulmonary chronic obstructive disease (death rates = 110.0, 61.4, 42.5 and 18.9 per 100,000, respectively). The high mortality due to Chagas' disease among residents in this community is the consequence of their past exposure to *Trypanosoma cruzi* infection, which is transmitted by a triatomine bug found in precarious housing conditions. Infection appears to have been interrupted around 20 years ago, but seropositivity for *T. cruzi* remains high among older inhabitants due to the cohort effect (Lima-Costa *et al.*, 2000, 2001).

Study population

A complete census was carried out in the town of Bambuí between October and November of 1994 for the identification of participants of the health survey. A non-replaceable random sample of 1664 residents aged $\geqslant 5$ years was selected for interviews, blood tests and other examinations. Those in the sample aged $\geqslant 18$ years ($n = 1221$) were selected for the present study (Lima-Costa *et al*., 2000). Considering that the population of Bambuí aged $\geqslant 18$ years was 10,645 inhabitants, this sample is large enough for estimating a prevalence of social phobia equal to 5.0% with a precision of 1.2% and a confidence interval of 95.0% (Dean *et al*., 1994).

Variables

The dependent variable in this study was social phobia. The one-month, one-year and lifetime prevalence were assessed, using the validated Portuguese version of the Composite International Diagnostic Interview (CIDI) (Lopes, 1994). The diagnosis was obtained using the CIDI computer program, employing the DSM-III-R (American Psychiatric Association, 1987). Nine interviewers with at least 11 years of schooling were selected among community members. They were trained with the researcher capacitating model used by the Brazilian CIDI reference center, where one of the authors (CMRV) was trained. The interviews were conducted between 24th October 1996 and 29th March 1997.

The following explanatory variables were considered in this study: (1) sociodemographic characteristics (gender, age, marital status, number of months worked in the past 12 months, number of years of schooling, monthly family income and monthly personal income); (2) indicators of health status (self-rated health, impossibility to perform any routine activity because of a health problem in past two weeks, staying in bed in the past two weeks and the reporting of positive medical history for selected diseases: hypertension, coronary heart disease, arthritis, diabetes, as well as any other chronic disease/condition); (3) use of health services in the past 12 months (number of visits to a doctor, visits to a psychiatrist or psychologist and hospitalizations); (4) use of medications in the past three months (prescribed and non-prescribed by a doctor or dentist); (5) seropositivity for *T. cruzi*. Further details are described elsewhere (Lima-Costa *et al*., 2000).

Information on gender, age, number of years of schooling, marital status and number of months working in the last year was obtained using the CIDI (World Health Organization, 1993). Other information was obtained using the BHAS questionnaire (Lima-Costa *et al*., 2000).

Regarding seropositivity for *T. cruzi*, serum samples were investigated for *T. cruzi* antibodies by indirect hemagglutination (IHA) and enzyme-linked immunosorbent assay (ELISA). The serology for *T. cruzi* was considered because it was previously observed that the infection was independently associated with several indicators of health status and with the use of health services in the study community, even 20 years after the interruption of its transmission (Lima-Costa *et al*., 2001).

Data analysis

The univariate analysis was based on the chi-square test or the chi-square test for linear trend. Crude and adjusted odds ratios and confidence intervals (Woolf's method) were used to estimate the strength of associations between variables (Armitage & Berry, 1987). Odds ratios were adjusted by the multiple logistic regression method (Hosmer & Lemenshow, 1989) for gender and age, that were considered a priori confounding variables in this study. Data analysis was performed using the Stata Statistical Software (Stata Corporation, 1997).

RESULTS

Of the 1221 selected individuals, 1037 (84.9%) participated in this study. The participants were similar to the individuals in the sample in relation to age (with a median of 39 in both cases) and gender (43.4 and 45.7% were males, respectively).

The 1-month, 1-year and lifetime prevalence rate of social phobia were 7.9, 9.1 and 11.8%, respectively. The 1-month social phobia prevalence was significantly higher among women than men ($p = 0.048$). The 1-year and lifetime prevalence were also higher among women, but the differences in relation to men were not statistically significant (Table 1).

Table 2 shows the distribution of 1-month social phobia, according with sociodemographic characteristics. Age group (45–64 years) and marital status (divorced/separated) were positively and significantly associated with social phobia, even after adjustments for age and gender. Number of months worked in last year, number of years of schooling and monthly family income were all negative and independently associated with social phobia. The association of social phobia with gender, observed in the univariate analysis, disappeared after adjustment for age. Monthly personal income was not significantly associated with social phobia in both the univariate and multivariate analysis ($p > 0.05$).

The prevalence of one-month social phobia was consistently higher among those with the lowest family income in all age groups (Figure 1).

The association of selected indicators of health status and use of health services or medications with one-month social phobia is presented in Table 3. Self-rated health (reasonable and bad/very bad), inability to perform routine activities because of a health problem in the past 2 weeks (yes), number of visits to a doctor in the past 12 months (3+) and number of prescribed medications used in the past 3 months (3+) were all positive and independently associated with social phobia. Number of chronic diseases/conditions, seropositivity for *T. cruzi*, visits to a psychiatrist/psychologist and hospitalizations in the previous 12 months were not significantly associated with social phobia after adjustments for age and gender.

Table 1
One-month, one-year and lifetime prevalence of social phobia, according to gender (Bambuí, Brazil)

Prevalence	**Total ($n = 1037$)**		**Men ($n = 449$)**		**Women ($n = 588$)**		**Women/ men ratio**	***p* value**
	%	(95% CI)	%	(95% CI)	%	(95% CI)		
1-month	7.9	(6.2–9.5)	6.0	(3.8–8.2)	9.4	(7.0–11.7)	1.6	0.048
1-year	9.1	(7.3–10.8)	7.6	(5.1–10.0)	10.2	(7.7–12.6)	1.3	0.144
Lifetime	11.8	(9.8–13.7)	10.0	(7.2–12.7)	13.0	(10.3–15.8)	1.3	0.128

n = number of interviewed
% = prevalence of social phobia
$p = p$ value: Pearson's chi-square (men vs. women)

Table 2
Distribution of one-month social phobia, according with sociodemographic characteristics (Bambuí, Brazil)

Sociodemographic characteristics	Social phobia Present *n* (%)	Social phobia Absent *n* (%)	Adjusted OR (95% CI)
Gender			
Males	27 (32.9)	422 (44.2)	1.00
Females	55 (67.1)	533 (55.8)	1.57 (0.97–2.54)[a]
	$p = 0.048$		
Age group (years)			
18–29	14 (17.1)	274 (28.7)	1.00
30–44	27 (32.9)	318 (33.3)	1.60 (0.82–3.13)[b]
45–64	33 (40.2)	271 (28.4)	2.32 (1.21–4.44)[b]
65+	8 (9.8)	92 (9.6)	1.62 (0.65–4.00)[b]
	$p = 0.063$		
Conjugal status			
Married	39 (47.6)	535 (56.0)	1.00
Single	21 (25.6)	292 (30.6)	1.12 (0.63–2.00)
Widowed	14 (17.1)	83 (8.6)	1.64 (0.76–3.51)
Divorced/separated	8 (9.8)	46 (4.8)	2.30 (1.01–5.22)
	$p = 0.012$		
Number of months worked in the past 12 months			
0 (Did not work)	44 (53.7)	320 (33.5)	1.00
1–6	7 (8.5)	77 (8.1)	0.77 (0.32–1.02)
7–12	31 (37.8)	557 (58.4)	0.48 (0.28–0.83)
	$p' < 0.001$		
Number of years of schooling			
0–3	37 (41.1)	256 (26.8)	1.00
3–7	28 (34.2)	365 (38.2)	0.59 (0.34–1.02)
8+	17 (20.7)	334 (25.0)	0.38 (0.20–0.75)
	$p' < 0.001$		
Monthly family income[c]			
<2.0	31 (37.8)	199 (21.1)	1.00
2.0–3.9	26 (31.7)	326 (34.5)	0.56 (0.32–0.99)
4.0+	25 (30.5)	420 (44.4)	0.44 (0.25–0.79)
	$p' = 0.001$		

Adjusted OR (95% CI): Odds ratio (95% confidence interval) adjusted for age and gender using multiple logistic regression method
[a] Adjusted for age
[b] Adjusted for gender
[c] In Brazilian minimum wages (each = U$120.00 in 1996)
$p = p$ value: Pearson's chi-square
$p' = p$ value: chi-square for linear trend

Table 3
Distribution of one-month social phobia, according with selected indicators of health status, and use of health services or medication characteristics (Bambuí, Brazil)

Sociodemographic characteristics	Social phobia Present n (%)	Social phobia Absent n (%)	Adjusted OR (95% CI)
Self-rated health			
Very good/good	31 (37,8)	592 (62.0)	1.00
Reasonable	32 (39.0)	296 (31.0)	1.92 (1.12–3.28)
Bad/very bad	19 (23.2)	67 (7.0)	4.91 (2.47–9.79)
	$p' < 0.001$		
No. chronic diseases/conditions reported			
0	27 (33.3)	463 (48.6)	1.00
1	25 (30.9)	271 (28.5)	1.42 (0.80–2.55)
2+	29 (35.8)	218 (22.9)	1.81 (0.98–3.35)
	$p' = 0.003$		
Unable to perform routine activities because of a health problem in the past 2 weeks			
No	59 (72.0)	830 (86.9)	1.00
Yes	23 (28.0)	125 (13.1)	2.27 (1.34–3.85)
	$p < 0.000$		
No. visits to a doctor in the past 12 months			
0	18 (22.2)	338 (35.4)	1.00
1	23 (28.4)	236 (24.7)	1.72 (0.90–3.28)
2	8 (9.9)	135 (14.1)	1.04 (0.44–2.45)
3+	32 (39.5)	246 (25.8)	2.02 (1.07–3.82)
	$p' = 0.003$		
Visits to a psychiatrist/psychologist in the past 12 months			
No	79 (96.3)	935 (98.1)	1.00
Yes	3 (3.7)	18 (1.9)	1.99 (0.57–6.96)
	$p = 0.041$		
Hospitalizations in the past 12 months			
No	68 (82.9)	826 (86.9)	1.00
Yes	14 (17.1)	125 (13.1)	1.16 (0.63–2.15)
	$p = 0.317$		
No. prescribed medications used in the past 3 months			
0	27 (32.9)	489 (51.2)	1.00
1	16 (19.5)	161 (16.9)	1.65 (0.86–3.18)
2	11 (13.4)	95 (9.9)	1.85 (0.87–3.92)
3+	28 (34.2)	210 (22.0)	1.89 (1.01–3.55)
	$p' = 0.001$		

Adjusted OR (95% CI): Odds ratio (95% confidence interval) adjusted for age and gender using multiple logistic regression method
$p = p$ value: Pearson's chi-square
$p' = p$ value: chi-square for linear trend

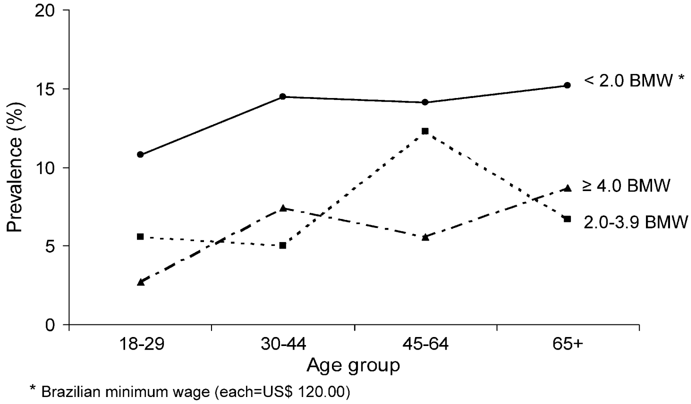

Figure 1. Prevalence of one-month social phobia according to monthly family income by age group

Seropositivity for *T. cruzi* (14.1 and 12.4% among cases and controls, respectively; $p = 0.658$) and use of non-prescribed medications in past 3 months (34.1 and 29.3%, respectively; $p = 0.371$) were not associated with social phobia in the univariate and the multivariate analysis.

DISCUSSION

The one-year and lifetime prevalence of social phobia found in this study were reasonably similar to that observed in developed countries, such as the USA and Canada, in studies using revised versions of the CIDI and the DSM-III-R criteria (Kessler *et al.*, 1994; Magee *et al.*, 1996; Offord *et al.*, 1996). On the other hand, the one-month prevalence found in Bambuí is higher than that observed in the above-mentioned studies.

Most studies have shown that women are more likely to have social phobia (Lee *et al.*, 1990a; Wittchen *et al.*, 1992; Degonda & Angst, 1993; Lindal & Stefansson, 1993; Lepine & Lellouch, 1995; Magee *et al.*, 1996; Offord *et al.*, 1996; Furmark *et al.*, 1999; Furmark, 2002), being the women/men ratio approximately 1.5 (3:2) (Furmark, 2002). In the present study, the gender ratio ranged from 1.3 for 1-year and lifetime prevalence to 1.6 for 1-month prevalence, but the gender differences were not statistically significant.

An independent association between social phobia and age group 45–64 years was found in this study. This result is in disagreement with previous observations of associations between social phobia and younger ages (Schneier *et al.*, 1992; Magee *et al.*, 1996; Furmark, 2002). Cultural aspects could play a role in the association between social phobia and age. For example, differences in the age of the onset of social phobia where detected in Hispanic and Asian individuals compared to North American ones (Weissman *et al.*, 1996). Also, rising societal demands for skills needed to establish collective networks, greater in some cultures than in others, may determine a cohort effect that could explain higher lifetime prevalence in younger rather than older individuals (Furmark, 2002). Further studies are necessary to explain that finding.

Social phobia has been found to be less likely among married people (Schneier *et al.*, 1992; Davidson *et al.*, 1993; Magee *et al.*, 1996) and to be associated with higher rates of employment difficulties (Schneier *et al.*, 1992; Magee *et al.*, 1996). Our results are consistent with these observations, i.e. we found independent associations between social phobia and being separated/divorced, and an inverse association with number of months worked in the previous year. But, it is important to note that being single or widowed was not associated with social phobia in this study. One explanation to this finding is the fact that the studied population is Catholic. Around 95% of the inhabitants of Bambuí follow this religion (Lima-Costa, *et al.*, 2001), which does not allow marriage dissolution. Thus, it is possible that religion influenced the above-mentioned results.

The strong and inverse association of education and income with social phobia in this study is consistent with previous observations in developed countries (Schneier *et al.*, 1992; Stein *et al.*, 1994; Chapman *et al.*, 1995; Magee *et al.*, 1996). However, this finding could not be anticipated because one could not expect this association in such a small and poor community as Bambuí. It had been expected that the differences of income and education were not sufficient to produce or reflect differences in the prevalence of social phobia. In this community, 62% of the inhabitants aged 18 years or older were less than 7 years educated, and 57% of the families have an income inferior to 4 Brazilian Minimum Wages (around US$500.00 in 1996). Notwithstanding, the results showed that even small differences in familiar income and education were sensitive enough to identify individuals with social phobia in the study community.

In opposition to previous findings (Schneier *et al.*, 1992; Davidson *et al.*, 1994; Stein *et al.*, 1994), personal income was not associated with social phobia. One can speculate that this is the consequence of cultural characteristics of the studied community, in which solidarity plays an important role. Thus, family support compensates, in some way, for the low income of its members (Lima-Costa *et al.*, 2001).

Based on cross-sectional studies it is not possible to establish a temporal relationship on the association between education or income and social phobia. Some authors have speculated whether low formal education is a consequence of impairment associated with social phobia (Davidson *et al.*, 1993). Others have hypothesized that people with social phobia, especially the generalized type, have more difficulties with being selected for a job or keeping it (Heimberg *et al.*, 1990).

Several indicators of health status were found to be associated with social phobia in the study community. Self-rated health in this and other studies (Davidson *et al.*, 1993; Wittchen *et al.*, 2000) was rated as fair or poor more frequently among social phobics than among controls. This is a striking finding because worse rated health is a strong and consistent predictor of mortality (Menec *et al.*, 1999). Individuals with social phobia reported more health services utilization and more frequent use of prescribed medications. Although part of these associations could be explained on the basis of other chronic conditions and/or comorbidity, in this study number of chronic diseases/conditions or *T. cruzi* infection could not explain the above-mentioned associations because they were not independently associated with social phobia.

Several population-based studies have shown that only a small percentage of individuals with social phobia seek professional help and the majority of them go untreated (Angst & Dobler-Mikola, 1985; Thompson *et al.*, 1988; Stein *et al.*, 1994; Magee *et al.*, 1996). In this study, carried on in a community that did not have specialized mental health services, only

3.7% of the individuals with social phobia had been seen by a psychiatrist or a psychologist during the last year. Unfortunately, it is not known what motivated these individuals to seek mental assistance. Anyway, it seems reasonable to consider that at least part of the excess of the medical services utilization observed among people with social phobia in this study was caused by this disorder and/or its comorbidity.

In summary, the results of this study show that there was an important burden of social phobia in the study community, due to its high prevalence, which was analogous (one-year or lifetime) or superior (one-month prevalence) to those observed in several developed countries, and due to its association with worse socioeconomic indicators, worse health status and more frequent doctor visits and more prescribed medications use. The strong association between social phobia and socioeconomic circumstance, even in a small and poor community, is certainly a reflex of the major social inequalities in Brazil.

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