DEPRESSION AND ANXIETY 14:137–140 (2001)

MINI-SPIN: A BRIEF SCREENING ASSESSMENT FOR GENERALIZED SOCIAL ANXIETY DISORDER

Kathryn M. Connor, M.D.,[1]* Kenneth A. Kobak, Ph.D.,[2] L. Erik Churchill, M.S.,[1] David Katzelnick, M.D.,[2] and Jonathan R. T. Davidson, M.D.[1]

The objectives of this study are to develop a brief self-rated screening instrument for generalized social anxiety disorder (GSAD) and to test the efficiency of the instrument. The Social Phobia Inventory (SPIN), a 17-item self-administered scale for GSAD, was given to 263 individuals with GSAD and controls. A subset of three items yielding high sensitivity and specificity for the diagnosis of GSAD was identified. This abbreviated version of the SPIN (Mini-SPIN) was administered to a group of managed care patients in conjunction with an epidemiological study of GSAD. Patients (n = 7,165) were sent a questionnaire comprising the Mini-SPIN and a brief depression screener. Respondents screening positive for GSAD on the Mini-SPIN (n = 344) were interviewed using the social phobia module of the Structured Clinical Interview for DSM-IV (SCID) to verify the diagnosis. A random sample of those who screened negative for GSAD on the Mini-SPIN were administered a similar interview to identify two control groups without GSAD for comparison (n = 673). With this information, the sensitivity, specificity, and positive and negative predictive values for the Mini-SPIN were determined (weighted for sampling). Using a cutoff score of 6 or greater, the Mini-SPIN demonstrated a sensitivity of 88.7%, specificity of 90.0%, positive predictive value of 52.5%, and negative predictive value of 98.5%. The scale possessed 90% accuracy (efficiency) in diagnosing the presence or absence of GSAD in a managed care population. The Mini-SPIN demonstrates good efficiency, supporting its utility as a screening tool for generalized social anxiety disorder. Depression and Anxiety 14:137–140, 2001. ***© 2001 Wiley-Liss, Inc.***

Key words: ***diagnostic screening; generalized social phobia; generalized social anxiety disorder***

INTRODUCTION

Interest in social anxiety disorder, often referred to as social phobia, has grown dramatically during the past decade, along with the increasing awareness of its high prevalence, associated disability, and treatment responsiveness [Ballenger et al., 1998]. Findings from the National Comorbidity Survey revealed a 12-month prevalence for social phobia of 7.9% and a lifetime prevalence rate of 13.3% [Kessler et al., 1994]. This condition is associated with higher rates of health care use and psychiatric comorbidity, particularly major depression, alcohol abuse, and suicide attempts [Davidson et al., 1993; Lecrubier, 1998]. In addition, social anxiety has a significant adverse impact on role functioning and overall quality of life [Ballenger et al., 1998]. Fortunately, social phobia responds to treatment with a variety of pharmacological and psychotherapeutic interventions. Yet, despite these disabilities and available treatment options, social anxiety frequently is not identified by clinicians. For example, in the Epidemiologic Catchment Area study, Davidson et al. observed that only 3% of the diagnosed cases had received medical treatment for social phobia in the past year [Davidson et al., 1993], and, similarly, only 0.5% of participants in a recent study in a large managed care organization [Katzelnick et al., submitted]. As a

[1]**Department of Psychiatry and Behavioral Sciences, Duke University Medical Center, Durham, North Carolina**
[2]**Dean Foundation, Madison Wisconsin**

Contract grant sponsors: National Institute of Mental Health and SmithKline Beecham.

*Correspondence to: Dr. Kathryn M. Connor, Box 3812 Duke University Medical Center, Durham, NC 27710.
E-mail: kathryn.connor@duke.edu

Received for publication 24 April 2000; Accepted 2 October 2000

result, social anxiety disorder frequently does not come to the attention of health care professionals and remains untreated.

Recognizing these concerns, we sought to develop a brief self-rated screening instrument to identify individuals with generalized social anxiety disorder (GSAD). This brief self-rated screen, which we refer to as the Mini-SPIN, is derived from the 17-item self-rated Social Phobia Inventory (SPIN) [Connor et al., 2000]. This report is organized into two parts. Part 1 describes methods and results in respect of developing the Mini-SPIN. Part 2 describes methods and results in respect of validating the Mini-SPIN in a different population.

PART I: DEVELOPMENT OF THE MINI-SPIN

MATERIALS AND METHODS

The 17-item self-rated Social Phobia Inventory (SPIN) [Connor et al., 2000] was administered to participants in two placebo-controlled drug trials of social phobia/social anxiety disorder [Pande et al., 1999] (Davidson et al., unpublished data). The first of these studies evaluated gabapentin and placebo (n = 81); in the second study, fluoxetine and cognitive behavior therapy were evaluated (n = 67). Two control groups were also evaluated: participants in a study of blood pressure [Watkins et al., 1998] (n = 68); psychiatric outpatients without social phobia (Davidson, unpublished data) (n = 47). Each item is rated on a 5-point scale as follows: 0 = not at all; 1 = a little bit; 2 = somewhat; 3 = very much; 4 = extremely. The full psychometric properties of the SPIN are described by Connor et al. [2000]. Approval was obtained from the Institutional Review Boards at participating sites for each study, and written informed consent was obtained from all subjects before participation.

Items that best discriminated subjects with GSAD from controls were derived by examining the mean scores for each item in the two cohorts, pooling data from the clinical trial samples (n = 148) and from the non-GSAD controls (n = 115), and observing which items showed greatest difference in mean score between groups. For each individual item, we also assessed the percentage of subjects in each group who scored at least 3. The top three items from the full SPIN were thus selected. After selection of these items, we calculated sensitivity, specificity, and positive and negative predictive values (PPV and NPV, respectively) at various cutoff points to find that cutoff score that produced maximum discriminability.

RESULTS

The mean score and frequency for each item on the SPIN are listed in Table 1. Three items were shown to exhibit the greatest difference between each study group, and these items are shown in Table 2. Sensitivity, specificity, PPV, and NPV are shown at various cutoff points for these three items (Table 3). Optimal efficiency for identifying individuals with GSAD was demonstrated at a cutoff score of 6.

II. TESTING OF THE MINI-SPIN

MATERIALS AND METHODS

A random sample of adult participants in a managed health care organization (n = 7,165) were contacted in

TABLE 1. Mean scores and frequency for SPIN items*

	Mean (SD) item score		Frequency of items scored at >3	
	GSAD[a]	Control	GSAD N (%)	Control N (%)
1. Fear of people in authority	2.1 (1.1)	0.6 (0.7)	50 (34)	1 (1)
2. Bothered by blushing	2.1 (1.4)	0.7 (0.8)	67 (45)	4 (4)
3. Fear of parties and social events	2.3 (1.1)	0.6 (0.7)	65 (44)	2 (2)
4. Avoids talking to strangers	2.3 (0.9)	0.8 (0.8)	60 (41)	4 (4)
5. Fear of criticism	2.8 (1.0)	1.0 (1.0)	96 (65)	8 (7)
6. Avoids embarrassment[b]	3.1 (0.9)	0.8 (0.8)	117 (79)	3 (3)
7. Distressed by sweating	1.9 (1.3)	0.4 (0.8)	55 (37)	3 (3)
8. Avoids parties	2.3 (1.2)	0.4 (0.8)	61 (41)	4 (4)
9. Avoids being the center of attention[b]	3.2 (0.9)	0.8 (1.0)	122 (83)	7 (6)
10. Fear of talking to strangers	1.9 (1.0)	0.4 (0.6)	41 (28)	1 (1)
11. Avoids speeches	3.4 (1.0)	1.3 (1.2)	126 (86)	20 (17)
12. Avoids criticism	2.6 (1.1)	0.9 (1.0)	86 (59)	9 (8)
13. Distressed by palpitations	1.6 (1.3)	0.3 (0.6)	42 (29)	1 (1)
14. Fear of others watching	2.3 (1.0)	0.6 (0.8)	60 (41)	2 (2)
15. Fear of embarrassment[b]	3.1 (0.9)	0.9 (0.9)	116 (79)	7 (6)
16. Avoids talking to authority figures	2.0 (1.1)	0.3 (0.7)	53 (36)	1 (1)
17. Distressed by trembling or shaking	2.1 (1.3)	0.7 (0.9)	62 (42)	6 (5)

SPIN, Social Phobia Inventory.

[a]*GSAD, generalized social anxiety disorder.*

[b]*This item showed the greatest difference between study groups (see Table 2).*

TABLE 2. Mini-SPIN items*

1. Fear of embarrassment causes me to avoid doing things or speaking to people
2. I avoid activities in which I am the center of attention
3. Being embarrassed or looking stupid are among my worse fears

**Optimum efficiency at a cutoff score of three for each item. SPIN, Social Phobia Inventory.*

conjunction with an epidemiological study of the costs of GSAD (D. J. Katzelnick et al., unpublished data), which was approved by the Dean Foundation Institutional Review Board. Individuals were mailed a questionnaire that consisted of the Mini-SPIN and a three-item screener for major depression [Rost et al., 1993]. Those who screened positive for GSAD on the Mini-SPIN (score of at least 6) and agreed to further participation were interviewed by telephone after providing verbal informed consent. To confirm the diagnosis of GSAD (n = 344), the interview consisted of a battery of assessments including the social phobia module of the Structured Clinical Interview for DSM-IV (SCID) [First et al., 1995]. All interviews were conducted by experienced mental health professionals who received comprehensive training on the administration and scoring of the SCID, and although trained to a standard (consensus with expert rating), no formal reliability testing was performed. For comparison, a random sample of individuals who were Mini-SPIN negative and depression positive according to the three-item depression screener (n = 397) or Mini-SPIN and depression negative (n = 276) were selected as control groups and interviewed in the same manner. Because approximately every fourth person who was negative on the Mini-SPIN was chosen to be interviewed, each of these subjects was weighted in the analyses to represent 3.97 subjects, to approximate the total sample of this "negative screen" group.

RESULTS

The sample comprised 1,017 individuals, the majority of whom were women (68%) and of mean age 42.8 years (SD = 11.2). Ninety-six percent were white, with a mean of 14 years of education (SD = 2.3) and a median income of $25,000. Twelve-month prevalence rate for social phobia was 8.2% and comorbid psychiatric disorders were common (44%), particularly major depression (37%). At a cutoff score of 6, the Mini-SPIN demonstrated a sensitivity of 88.7%, specificity of 90.0%, PPV of 52.6%, NPV of 98.5%, and a diagnostic efficiency of 89.9% (Table 4). Sensitivity and specificity were similar for men (88.7% and 90.0%, respectively) and women (89.9% and 89.5%, respectively). Examination by ethnicity was not possible because of the small sample size.

TABLE 3. Sensitivity, specificity, and positive and negative predictive value of the Mini-SPIN in the derivation sample

Cutoff score	Sensitivity	Specificity	PPV[a]	NPV[a]
4	96.6	73.9	82.8	94.4
5	96.6	85.2	89.4	95.1
6	94.6	90.4	92.8	92.9
7	89.3	97.4	97.8	87.5

[a]PPV, positive predictive value; NPV, negative predictive value.

DISCUSSION

We recognize that this is a beginning attempt to develop a simple yet effective screening tool for GSAD, which can be completed by the patient. It should take no more that a few minutes to complete and review, and as such, we hope that it will form a useful tool in diagnostic assessment of a disorder that is still far too frequently overlooked. Furthermore, it is a disorder that carries a substantial burden and is very treatable. Having identified the three most discriminant items in a sample of patients with social anxiety disorder who are seeking treatment relative to controls, we found that these three performed well in the validation sample obtained from managed care. However, it will be important to further assess the Mini-SPIN in other populations. This will include populations from other cultures and other age groups, especially children and adolescents, given the early age of onset of GSAD [Schneier et al., 1992], as well as in treatment-seeking mental-health and non–mental-health samples. Yet another limitation is the fact that we have only evaluated GSAD, and we would not necessarily expect that the same three items would perform as successfully in the nongeneralized form of SAD, which is more conspicuously characterized by physiologic symptoms in the performance setting.

In using the Mini-SPIN, we see this as a screening tool that could easily be completed by patients while they await their visits with the doctor, for example, in primary care and in psychiatry and, perhaps, in other settings. In addition, this brief scale could also be added to existing questionnaires used to screen multiple mental health and general medical conditions. The Mini-SPIN could then be quickly reviewed jointly by the physician and patient. As indicated, further focused diagnostic

TABLE 4. Sensitivity, specificity, and positive and negative predictive value of the Mini-SPIN in the managed care sample*

Cutoff score	Sensitivity	Specificity	PPV[a]	NPV[a]
4	95.1	72.0	29.8	99.2
5	92.2	83.3	40.9	98.8
6	88.7	90.0	52.6	98.5
7	73.5	94.5	62.5	96.6

**Used weighted numbers.*
[a]PPV, positive predictive value; NPV, negative predictive value; SPIN, Social Phobia Inventory.

questions could then be asked by the clinician. We do not consider the scale alone sufficient to establish or reject a diagnosis of GSAD, and this concern is further supported by the relatively low PPV of the scale. With a cutoff score of at least 6, the physician may want to pursue further questions about the presence of GSAD. In terms of interpretation, a score of 6 could be obtained by having three symptoms present at a moderate level, or at least one item that meets the severity criterion of "very much" or "extremely." Although several self-rating scales for SAD exist, we are unaware of their performance as diagnostically sensitive.

CONCLUSIONS

The Mini-SPIN is a brief self-rated scale that has good efficiency in distinguishing individuals with GSAD in a managed care setting. It may be useful in psychiatric, primary care, and other medical settings in identifying individuals with GSAD and may facilitate initiation of appropriate treatment. We hope that this report will kindle interest in the more widespread use of the Mini-SPIN.

Acknowledgments. We thank Drs. Atul Pande, Lana Watkins, and Richard Weisler for making data available.

REFERENCES

Ballenger JC, Davidson JRT, Lecrubier Y, Nutt DJ (International Consensus Group on Depression and Anxiety), Bobes J, Beibel DC, Ono Y, Westenberg HGM. 1998. Consensus statement on social anxiety disorder from the International Consensus Group on Depression and Anxiety. J Clin Psychiatry 59(suppl 17):54–60.

Connor KM, Davidson JRT, Churchill LE, Sherwood A, Foa EB, Weisler RH. 2000. Psychometric properties of the Social Phobia Inventory (SPIN): a new self-rating scale. Br J Psychiatry 176:379–386.

Davidson JRT, Hughes DC, George LK, Blazer DG. 1993. The epidemiology of social phobia: findings from the Duke Epidemiological Catchment Area study. Psychol Med 23:709–718.

First MB, Spitzer RL, Williams JBW, Gibbon M. 1995. Structured clinical interview for DSM-IV axis I disorders—patient edition (SCID-I/P Version 2.0). New York: New York Psychiatric Institute.

Kessler RC, McGonagle KA, Zhao S, Nelson CB, Hughes M, Eshleman S, Wittchen HU, Kenaler KS. 1994. Lifetime and 12-month prevalence of DSM-III R psychiatric disorders in the United States: results from the National Comorbidity Survey. Arch Gen Psychiatry 51:8–19.

Lecrubier Y. 1998. Comorbidity in social anxiety disorder: impact on disease burden and management. J Clin Psychiatry 59(suppl 17):33–37.

Pande AC, Davidson JRT, Jefferson JW, Janney CA, Katzelnick DJ, Weisler RH, Greist JH, Sutherland SN. 1999. Treatment of social phobia with gabapentin: a placebo controlled study. J Clin Psychopharmacol 19:341–348.

Rost K, Burnham A, Smith GR. 1993. Development of screeners for depressive disorders and substance abuse history. Med Care 31:189–200.

Schneier FR, Johnson J, Hornig CD, Leibowitz MR, Weissman MM. 1992. Social phobia: comorbidity and morbidity in an epidemiological sample. Arch Gen Psychiatry 49:282–288.

Watkins LL, Grossman P, Krishnan KRR, Sherwood A. 1998. Anxiety and vagal control of heart rate. Psychosom Med 60:498–502.