

## **The Social Phobia and Social Interaction Anxiety Scales: An Exploration of the Dimensions of Social Anxiety and Sex Differences in Structure and Relations with Pathology**

**A. Marie Habke,<sup>1</sup> Paul L. Hewitt,<sup>1,4</sup> G. Ron Norton,<sup>2</sup> and G. Asmundson<sup>3</sup>**

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*This study sought to provide information on the Social Phobia Scale (SPS) and Social Interaction Anxiety Scale (SIAS) of Mattick and Clarke (1989) with respect to factor structure, relations with psychopathology, and sex differences. A sample of 200 university students completed the SPS and SIAS and various measures of anxiety symptoms and depression. The results from the factor analyses for the sample as a whole suggest the presence of three factors corresponding to scrutiny fears, social interaction anxiety, and a general level of discomfort in social interactions. The results for men replicated this structure. For women, the three-factor solution demonstrated a blurring between the types of anxiety-provoking situations, and a general discomfort in situations involving differences in social power. In general, the discomfort factor was not correlated with measures of pathology, raising the possibility that uneasiness in these situations represents a process that is not part of social anxiety. The distinction between scrutiny fears and social interaction anxiety was also supported by the pattern of partial correlations that suggests that the presence of scrutiny fears is a stronger predictor of psychopathology than is social interaction anxiety, especially for men.*

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**KEY WORDS:** social anxiety; social phobia; social interaction anxiety; assessment.

<sup>1</sup>University of British Columbia, Vancouver, Canada.

<sup>2</sup>University of Winnipeg, Winnipeg, Canada.

<sup>3</sup>Wescana Rehabilitation Centre, Regina, Canada.

<sup>4</sup>To whom correspondence should be addressed at Psychology Department, University of British Columbia, Vancouver, B.C., Canada V6T 1Z4.

## INTRODUCTION

Social phobia is a disorder that involves a fear of situations in which the person is exposed to possible embarrassment by something that he or she may do or say (DSM-IV; American Psychiatric Association, 1994). Although in the past social phobia was seen as a unitary construct, more recently, subtypes of social phobia have been recognized that acknowledge that fear can be limited to one specific situation or generalized to many. One attempt to classify the situations that cause anxiety distinguishes between those that involve being observed or scrutinized by others and those involving social interactions such as conversations or greetings (Liebowitz, 1987). This distinction seems useful in that it captures both the variation in the degree of acquaintance involved in social interactions and the extent to which they require an awareness of the reactions of the other. Leary (1983) describes situations that require such an awareness and subsequent adjustment in behavior based on feedback provided by the other as *contingent* interactions; in contrast, situations such as public speaking and eating in public are *noncontingent* interactions because they do not involve these modifications.

Traditionally, measures of social phobia have not distinguished between these two types of fearful situations. Early measures of social phobia focused on assessing socially phobic behavior such as avoidance across a variety of situations (e.g., Social Avoidance and Distress Scale; Watson & Friend, 1969) or specific fears (e.g., Fear of Negative Evaluation Scale; Watson & Friend, 1969). Not only did these scales not distinguish the two dimensions of fears, they were not developed or evaluated with socially phobic populations. Moreover, concerns regarding their general psychometric properties have been raised (see Heimberg, Mueller, Holt, Hope, & Liebowitz, 1992). Recently, Turner, Beidel, Dancu, and Stanley (1989) published the Social Phobia and Anxiety Inventory (SPAI), which has since come into popular use with clinical populations. This scale is a measure of behavioral, affective, and cognitive experiences in a variety of social situations, some of which include interactions and others that are more focused on being scrutinized. The scale does not provide subscale scores based on this distinction although factor analytic work suggests that the scale does differentiate between interaction situations and being the focus of attention (Osman, Barrios, Aukes, & Osman, 1995; Turner, Stanley, Beidel, & Bond, 1989). However, many of the items assessing scrutiny fears are general (e.g., I feel anxious when entering social situations where there is a small group) and may involve social interaction anxiety as well as scrutiny fears. Furthermore, the scale is weighted towards situations involving public speaking

and includes few items that involve being the focus of attention in other situations.

Mattick and Clarke (1989) addressed these limitations in their development of two companion scales to measure a broad range of scrutiny fears and social interaction anxiety. Because information on the initial construction of Mattick and Clarke's Social Phobia Scale (SPS) and Social Interaction Anxiety Scale (SIAS) remains unpublished, we provide a brief overview of their psychometric development. Seventy-nine items were chosen from an initial pool of 164 items that were based on clinical interviews or that had been culled from existing fear survey schedules and social anxiety inventories. Items were evaluated in terms of their reference to scrutiny fears or the affective experience of anxiety, and a lack of reference to generalized social apprehension. Following removal of four items based on misclassification to social phobia or social interaction anxiety by an expert judge, several samples of subjects rated the degree to which the statement was characteristic of them on a 5-point Likert scale. The entire scale was administered to a college sample ( $n = 482$ ), a community sample ( $n = 315$ ), a social phobic sample ( $n = 243$ ), and two other anxious but nonsocial phobic patient groups ( $n = 29$ ). Following item analysis, the scales were reduced to 20 items for each scale.

The two scales evidence significant reliability and validity; internal consistency ranged from .89 to .94 for the Social Phobia Scale and .88 to .93 for the Social Interaction Anxiety Scale across different samples in the original study (Mattick & Clarke, 1989). Similar results were found by Heimberg *et al.* (1992), supporting the reliability of the scales. Test-retest correlations between scores over 3–13 weeks for both scales were highly significant (Mattick & Clarke, 1989), although the findings for the SPS were somewhat lower in the Heimberg study ( $r = .66$  over approximately 2 weeks). Factor analyses on each scale demonstrated the presence of one factor on the SIAS, and three factors on the SPS consistent with differences in specific scrutiny fears.<sup>5</sup> Zero-order correlations between the scales and other measures of social evaluation fears were significant for both the SPS and the SIAS. Although Mattick and Clarke do not give information regarding relative differences in the correlations for the scales, Heimberg *et al.* (1992) provide evidence that the SIAS correlates more strongly with social interaction anxieties than performance fears and that the SPS correlates more strongly with performance fears than with social interaction anxieties. The ability of both the SPS and the SIAS to dis-

<sup>5</sup>These factors included a general fear of being observed in public places, fear of specific behaviors performed in public such as writing or trembling, and fears of being viewed as sick or odd.

criminate social phobics from nonsocial phobics (Brown, Turovsky, Heimberg, Brown, & Barlow, 1994; Heimberg *et al.*, 1992; Mattick & Clarke, 1989) and the SIAS to discriminate the generalized subtype of social phobia (Heimberg *et al.*, 1992) can be taken as evidence of the measures' discriminant validity.

Despite support for the reliability and validity of these scales, the independence of the Mattick-Clarke scales needs to be established before the use of the scales can be encouraged. The two scales were highly correlated ( $r = .72$ ) in the original study and this was confirmed by Heimberg *et al.* (1992), who found correlations between .41 for a socially phobic group and .89 for a community sample. In addition, these two scales show very similar relations to other measures of similar constructs. For example, with a community sample, the magnitude of correlations between the SPS and measures of related constructs did not differ by more than .08 from those between the SIAS and the same measures (Heimberg *et al.*, 1992). While the relations between the SIAS and SPS and other measures of social phobia did differ for a socially phobic group in the Heimberg study, this was due primarily to low relations between the SPS and some of the other measures typically associated with social phobia. This is particularly hard to interpret given that in the original study, social phobics showed similar and significant relations between the SPS and SIAS and these variables.

Although it is clear that a fear of scrutiny and a general anxiety about social interactions often co-occur (Holt, Heimberg, & Hope, 1992; Turner, Beidel, Dancu, & Keys, 1986), the strength and consistency of the relations outlined above raise the possibility that these two scales are measuring the same construct despite their face validity for independent constructs. In other words, perhaps an individual either is or is not socially anxious and the differences between the situations in which the anxiety might arise are not meaningful. Although the original authors examined the factor structure of both scales independently, clearly there needs to be a confirmation of the presence of two distinguished factors across scales (Cox & Swinson, 1995). More broadly, such evidence is needed to support the distinction between the two general types of fearful situations involved in social anxiety as an important qualitative difference, rather than as a reflection of severity in social anxiety. The subtypes of generalized and nongeneralized social anxiety have been differentially linked to outcomes (those with more specific fears such as public speaking being less impaired than those with generalized fears; Turner, Beidel, & Townsley, 1992), and given that the SIAS and the SPS correspond to the generalized and nongeneralized subtypes of social phobia respectively (Norton, Cox, Hewitt, & McLeod, 1996), it is necessary to determine if

these measures are capturing a range of severity or different clusters of anxiety-provoking situations.

The current study administered the SPS and the SIAS to a university sample and evaluated the independence of the scales in two ways. First, the scales were submitted to factor analysis to confirm the existence of separate social phobia and social interaction factors. Second, because research on social phobia has acknowledged considerable comorbidity with other anxiety disorders (Schneier, Johnson, Hornig, Liebowitz, & Weissman, 1992), the scales were examined for differential relations to other measures of psychopathology to determine if they make independent contributions to levels of generalized anxiety, agoraphobia, obsessive-compulsive behavior, and depression.

This study also allows for an exploration of sex differences in social anxiety and social interaction anxiety. The evidence regarding differences between men and women in levels of social anxiety and the incidence of social phobia is conflicting. Considering patient groups, some studies have found higher rates of social phobia among males (Amies, Gelder, & Shaw, 1983), although this was not found in others (e.g., Heimberg *et al.*, 1992). In community samples, some studies have found no gender differences in social phobia (Bourdon *et al.*, 1988; Mattick & Clarke, 1989; see Feingold, 1994), while others have demonstrated that women are more likely to be socially anxious than men (Schneier *et al.*, 1992; Stein, Walker, & Forde, 1994). Using the SPS, Heimberg *et al.* (1992) found higher levels of social phobia symptoms among women in their community sample.

Going beyond equivocal differences in mean levels, however, it is also possible that gender influences the way in which social anxiety is expressed. That is, men and women may experience different triggers for social anxiety, may express their social anxiety in different ways, and may experience different consequences of social anxiety. One recent study looking at gender differences within social phobia symptoms measured by the SPAI demonstrated that even though they did not demonstrate any differences on overall measures of social phobia, women can be differentiated from men based on their higher scores on anxiety in individual interactions and in somatic and cognitive symptoms and lower scores on avoidance (Osman *et al.*, 1995). The present study begins to explore sex differences in social anxiety and social phobia measured by Mattick and Clarke's Social Phobia and Social Interaction Anxiety scales by assessing differences not only in mean levels of social anxiety symptoms, but also in factor structure and degree of relations with other measures.

## METHOD

### Subjects

A sample of 204 University students (99 men; 104 women; 1 undeclared) consented to participate in a study of anxiety and personality in return for course credit. Of these, 200 (98 men, 102 women) provided sufficient data for analysis. The subjects ranged in age between 17 and 45 [ $M = 20.46$  (4.18); males = 20.14 (3.55), women = 20.69 (4.59)].

### Measures and Procedure

Volunteer subjects were recruited from several Introductory Psychology classes. They completed a self-report package individually or in groups of approximately 20 and were debriefed following completion. The subjects completed the following scales: the Social Phobia and Social Interaction Anxiety Scales (Mattick & Clarke, 1989) have been described above. The Social Phobia and Anxiety Inventory (Turner, Beidel, *et al.*, 1989) was included because of its growing popularity and demonstrated utility for clinical work. The agoraphobia subscale and the difference score (calculated by subtracting the agoraphobia score from the social phobia subscore to provide a measure of social phobia that does not reflect anxiety associated with panic) were used in the present research. The scale has been widely used and shows good reliability and validity in patient and student samples (Beidel, Borden, Turner, & Jacob, 1989; Beidel, Turner, Stanley, & Dancu, 1989; Osman *et al.*, 1995; Turner, Beidel, *et al.*, 1989).

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) provides a measure of cognitive and physiological symptoms of anxiety that occur without reference to a particular situation. As such, it provides a more generalized measure of anxiety and was included to allow for an assessment of the relations between anxiety in specific situations and symptoms of anxiety. This scale is widely used and is reliable and valid (see Fydrich, Dowdall, & Chambless, 1992; Hewitt & Norton, 1992).

The Endler Multidimensional Anxiety Scale—State (EMAS-S; Endler, Edwards, & Vitelli, 1991) is a brief measure of current anxiety symptoms. It provides subscale measures of autonomic symptoms and cognitive worry. It is widely used, and shows good reliability and validity (see Endler *et al.*, 1991).

The Maudsley Obsessive-Compulsive Inventory (MOCI; Hodgson & Rachman, 1977) provides subscales measuring checking and cleaning behaviors, obsessive thoughts, obsessional slowness, and self-doubt. The scale

has been demonstrated to be reliable and valid (see Rachman & Hodgson, 1980).

Finally, the Beck Depression Inventory (BDI; Beck, Rush, Shaw, & Emery, 1979) was included as a measure of depression. This 21-item scale is widely used and many studies have demonstrated its reliability and validity (for a review see Beck, Steer, & Garbin, 1988).

## RESULTS

### Analyses of Total Scores

The mean values on the SIAS and SPS and the other measures of anxiety and depression are provided in Table I for the total sample and separately for men and women. The mean levels of the SPS and SIAS for the total sample are somewhat higher than those found in some university samples [respectively,  $t(251) = 2.24, p < .01$ , and  $t(251) = 4.71, p < .001$ ], (Heimberg *et al.*, 1992)<sup>6</sup> but are consistent with those found in other research (Norton *et al.*, 1996). While levels on the BAI and BDI were also higher than other university samples (e.g., Borden, Peterson, & Jackson, 1991; Dixon, Heppner, Burnett, & Lips, 1993), scores on the SPAI (Osman *et al.*, 1995) and the EMAS-S (Endler *et al.*, 1991) were in line with those found by other studies.

In terms of mean sex differences, women scored higher than men on the SPS [ $t(198) = 2.67, p < .01$ ] but not the SIAS. Women also scored higher than men on the Beck Anxiety Inventory [ $t(198) = 2.66, p < .01$ ] and the BDI [ $t(198) = 2.47, p < .05$ ], suggesting that, overall, women in this sample were more distressed than men. Men and women did not differ on the EMAS-S.

*Factor Analyses.* The SPS and the SIAS were combined and submitted to a principal-components factor analysis that is reported in Table II.<sup>7</sup> In accordance with recommendations by Comrey (1988), the scree slope was examined to determine the number of factors that should be held constant while the solution iterates. Because the initial scree test suggested the presence of three factors, a three-factor solution was requested.<sup>8</sup> Following vari-

<sup>6</sup>This difference was explored at the item level; while some items were very consistent across studies, others differed by as much as six times. Only two items were lower than in Mattick and Clarke's community sample.

<sup>7</sup>The full items can be obtained from the authors.

<sup>8</sup>When a two-factor solution was requested, the SIAS and SPS items did tend to load together, but 28% of the items loaded on both factors. Further, removing those items (five) which did not load with their respective scales resulted in a more unstable solution and failed to confirm the original SIAS and SPS scales.

Table I. Means and Standard Deviations for the Total Sample, Men, and Women

	Total	Men ( <i>n</i> = 98)	Women ( <i>n</i> = 102)
Social Interaction Anxiety (SIAS)	28.90 (13.41)	27.19 (12.4)	30.55 (14.17)
Social Phobia Scale (SPS)	18.99 (14.12)	16.31 (13.64)	21.57 (14.16)
Beck Depression Inventory	10.54 (9.04)	8.96 (8.52)	12.07 (9.30)
Beck Anxiety Inventory	12.23 (8.74)	10.71 (8.48)	13.70 (8.77)
SPAI <sup>a</sup>			
Difference	58.92 (31.12)	55.62 (31.60)	62.09 (30.47)
Agoraphobia	19.33 (11.39)	16.54 (10.82)	22.02 (11.32)
EMAS <sup>b</sup>			
State (Total)	31.68 (13.67)	31.69 (13.74)	31.68 (13.66)
Cognitive	16.44 (7.35)	16.12 (7.27)	16.75 (7.44)
Autonomic	15.32 (6.95)	15.76 (7.21)	14.89 (6.70)
Maudsley Obsessive Compulsive Inventory			
Checking	2.74 (2.08)	2.51 (2.05)	2.97 (2.10)
Cleaning	2.98 (2.27)	2.78 (2.19)	3.18 (2.34)
Doubting	3.39 (1.72)	3.22 (1.76)	3.56 (1.66)
Obsessions	9.96 (5.35)	9.35 (5.33)	10.56 (5.32)
Slowness	2.78 (1.25)	2.72 (1.22)	2.84 (1.29)

<sup>a</sup>Social Phobia and Anxiety Inventory.

<sup>b</sup>Endler Multidimensional Anxiety Scale (State).

max rotation (consistent with an oblique rotation), the presence of three factors was confirmed. The first factor explained 42% of the variance and consisted solely of items from the SPS. The second factor explained an additional 6.8% of the variance and consisted *primarily* of items from the SIAS. The final factor explained an additional 3.7% and consisted entirely of items from the SIAS that are reversed (i.e., worded in a positive manner and then reverse scored as in "When mixing socially, I am comfortable"). This suggests that the SIAS includes items that tap a general level of discomfort with social interactions that is different from social interaction anxiety. In order to make comparisons with Mattick and Clarke's initial work, the SIAS was factor analyzed alone and the "social discomfort" items again loaded onto a second factor.

Although the structure of the initial analysis generally supported the presence of factors corresponding to social interaction anxiety and scrutiny fears, four SPS items failed to fall on the same factor as other terms from that scale. These items were "I become anxious if I have to write in front of other people," "I feel self-conscious if I have to enter a room where others are already seated," "I fear I may blush when I am with others," and "I can get tense when I speak in front of other people." One SIAS item ("I find difficulty mixing comfortably with people I work with") double-loaded on the social phobia and social discomfort factors. A second factor analysis without these items again confirmed a three-factor structure

Table II. Original Factor Loadings Using Both Scales

Variable	Factor		
	I	II	III
SPS14	.78	.24	.03
SPS10	.77	.22	-.02
SPS19	.75	.22	.07
SPS9	.72	.22	-.02
SPS16	.71	.36	.20
SPS17	.70	.32	.10
SPS12	.69	.29	.18
SPS11	.67	.14	.00
SPS15	.67	.39	.15
SPS8	.65	.18	.26
SPS7	.58	.49	.09
SPS13	.54	.46	.09
SPS20	.54	.53	.24
SPS4	.53	.49	.06
SPS2	.51	.21	.20
SPS3	.46	.37	.00
SIAS4	.40	.30	.40
SIAS13	.04	.71	-.12
SIAS20	.29	.70	.18
SIAS12	.35	.69	.11
SIAS17	.39	.68	.28
SIAS19	.35	.65	.37
SPS18	.20	.64	.26
SIAS16	.32	.63	.42
SPS6	.45	.63	.20
SIAS18	.39	.58	.25
SIAS15	.44	.57	.38
SIAS1	.27	.55	.30
SIAS10	.27	.51	.38
SPS1	.27	.46	.12
SIAS6	.35	.46	.05
SPS5	.45	.46	.11
SIAS2	.34	.45	.31
SIAS14	.31	.43	.36
SIAS8	.33	.43	-.02
SIAS3	.26	.42	.33
SIAS7 <sup>a</sup>	.07	.10	.79
SIAS9 <sup>a</sup>	.07	.29	.73
SIAS5 <sup>a</sup>	.04	-.08	.59
SIAS11 <sup>a</sup>	-.13	.25	.54

<sup>a</sup>These items are reverse scored.

including one with all SPS items loading together, a second with the social anxiety items of the SIAS, and a third that appears to capture social discomfort as noted above.

In order to determine if the factor structure is similar across gender, the data were reanalyzed separately for men and women using the reduced number of items suggested by the initial analyses. The results are displayed in Table III. For men, the initial scree again suggested three factors and the results following varimax rotation replicated those found with the whole sample. For women, the scree also suggested the presence of three factors although the structure of the factors differed from both the sample as a whole and the subsample of males. The first factor again contained all of the items from the SPS but also included several items from the SIAS such as worrying about not knowing what to say, or feeling unsure how to greet an acquaintance. The second factor consisted exclusively of items from the SIAS, including the social discomfort items that separated from the scale in the earlier analyses. The final factor consisted of primarily SIAS items; these items included having difficulty expressing disagreement, talking with individuals in authority, making eye contact, and talking with attractive members of the opposite sex. These items are suggestive of a factor reflecting a discomfort in situations involving assertiveness or power that is specific to some women. A  $t$  test of the difference between men and women on this factor suggests that there are not sex differences in mean levels of this cluster of items [ $t(198) = 1.76, p > .05$ ].

A test of congruence between factor structures was conducted (Harman, 1976). The coefficients of congruence were .92 between Factor 1 in men and Factor 1 in women, .87 between Factor 2 in men and Factor 2 in women, and .67 for Factor 3 in men and Factor 3 in women. This suggests that although Factors 1 and 2 are similar between men and women, Factor 3 is quite different (see Harman, 1976).

*Zero-Order and Partial Correlations Using the Original Scales.* The bivariate correlation between the scales [ $r(200) = .78, p < .001$ ] was consistent with that reported by Mattick and Clarke (1989). The zero-order and partial correlations between the two scales and the measures of depression and anxiety are reported in Table IV. They are reported for the whole sample and for men and women individually. With respect to the zero-order correlations, both the SIAS and the SPS were correlated with all of the measures with the exception of the slowness subscale of the MOCI. This pattern held for both men and women. With respect to the partial correlations with the total sample, the SIAS was uniquely associated with the SPAI Social Phobia scale and the BDI and negatively associated with slowness. The SPS, on the other hand, was associated positively with all of the measures except the SPAI Social Phobia scale. In terms of gender differences, the patterns of partial correlations are largely consistent across gender with some differences on the MOCI and a different pattern of relations between the social phobia measures and the BDI. After controlling for

Table III. Factor Loadings for Men and Women

Variable	Men			Variable	Women		
	Factor				Factor		
	I	II	III		I	II	III
SPS10	.80	.15	.08	SPS14	.77	.04	.24
SPS14	.78	.29	.05	SPS13	.76	.24	.07
SPS19	.78	.33	.06	SPS15	.72	.24	.25
SPS9	.78	.09	.05	SPS4	.70	.29	.13
SPS16	.74	.37	.03	SPS17	.70	.09	.37
SPS11	.68	.19	.02	SPS12	.68	.20	.18
SPS8	.68	.06	.26	SPS10	.67	.03	.42
SPS17	.67	.34	.05	SPS16	.66	.32	.35
SPS7	.66	.42	.05	SPS20	.65	.43	.13
SPS20	.65	.43	.28	SPS11	.63	.08	.17
SPS12	.65	.50	.02	SPS9	.62	.08	.47
SPS15	.64	.44	.02	SPS2	.61	.32	.03
SPS4	.63	.25	.11	SPS7	.60	.28	.32
SPS2	.61	.16	.24	SIAS15	.60	.48	.32
SPS3	.55	.22	.02	SPS8	.55	.21	.41
SPS13	.51	.44	.01	SPS3	.53	.27	.15
SIAS20	.26	.77	.06	SIAS20	.52	.51	.19
SIAS19	.29	.73	.18	SIAS6	.42	.14	.37
SIAS17	.40	.70	.17	SIAS9 <sup>a</sup>	.23	.81	.15
SIAS12	.40	.70	.05	SIAS7 <sup>a</sup>	.11	.80	.10
SIAS16	.27	.69	.37	SIAS16	.54	.61	.22
SIAS10	.24	.65	.16	SIAS11 <sup>a</sup>	.00	.60	.05
SIAS15	.37	.64	.35	SIAS19	.46	.59	.38
SIAS6	.26	.63	.09	SIAS5 <sup>a</sup>	-.04	.56	.13
SIAS13	.10	.63	.07	SIAS18	.49	.54	.27
SIAS2	.25	.59	.19	SIAS17	.46	.53	.44
SIAS1	.18	.57	.22	SIAS10	.25	.51	.44
SIAS18	.42	.54	.09	SIAS3	.28	.41	.37
SIAS14	.20	.48	.46	SIAS8	.01	.12	.83
SIAS8	.42	.43	.18	SIAS2	.25	.32	.63
SIAS3	.26	.41	.27	SPS19	.50	.04	.52
SIAS7 <sup>a</sup>	.07	.03	.80	SIAS14	.41	.28	.48
SIAS9 <sup>a</sup>	-.05	.31	.62	SIAS12	.38	.38	.46
SIAS11 <sup>a</sup>	-.21	.32	.46	SIAS1	.35	.42	.45
SIAS5 <sup>a</sup>	.03	.04	.45	SIAS13	.18	.18	.44

<sup>a</sup>These items are reverse scored.

scores on the SIAS, men show a higher correlation than women between depression and scrutiny fears ( $z = 3.14, p < .01$ ). Although women show a higher correlation between depression and social interaction anxiety after controlling for social phobia than do men, this difference is not significant.

**Table IV.** Correlations and Partial Correlations Between Depression and Anxiety Measures and SIAS and SPS for Total Sample and for Men and Women

	Zero-order		Partial <sup>a</sup>	
	Total	Men/women	Total	Men/women
Social Interaction Anxiety Scale				
Beck Depression Inventory	.53***	.53***/.51***	.15*	.07/.25*
Beck Anxiety Inventory	.35***	.39***/.29**	-.03	.05/-.08
SPAI				
Social Phobia	.80***	.84***/.87***	.66***	.65***/.67***
Agoraphobia	.57***	.61***/.51***	.07	.24*/-.07
Maudsley				
Checking	.39***	.28**/.46***	.11	.01/.20*
Cleaning	.27***	.21*/.30**	-.03	-.06/.00
Doubting	.38***	.35***/.39***	.06	-.02/.16
Obsessions	.40***	.34***/.43***	.02	.03/.08
Slowness	-.05	-.05/-.05	-.14*	-.04/-.25*
EMAS: State (Total)	.48***	.50***/.47***	.03	-.03/.09
Cognitive	.53***	.54***/.52***	.08	.01/.16
Autonomic	.40***	.43***/.40***	-.02	-.06/.03
Social Phobia Scale				
Beck Depression Inventory	.58***	.68***/.47***	.31***	.50***/.11
Beck Anxiety Inventory	.42***	.50***/.41***	.34***	.34***/.32**
SPAI				
Social Phobia	.60***	.57***/.62***	-.06	-.01/-.12
Agoraphobia	.69***	.68***/.67***	.48***	.44***/.50***
Maudsley				
Checking	.42***	.38***/.44***	.21**	.27**/.12
Cleaning	.36***	.34***/.37***	.26***	.27**/.23*
Doubting	.44***	.49***/.38***	.25***	.37***/.11
Obsessions	.50***	.49***/.48***	.32***	.38***/.25*
Slowness	.05	-.04/.11	.14*	.00/.27**
EMAS: State (Total)	.60***	.71***/.53***	.41***	.58***/.27**
Cognitive	.63***	.73***/.54***	.40***	.58***/.24*
Autonomic	.53***	.63***/.47***	.37***	.52***/.27**

<sup>a</sup>Correlations between scale and measure controlling for other scale.

- \* $p < .05$ .  
 \*\* $p < .01$ .  
 \*\*\* $p < .001$ .

Because the results of the factor analyses suggested the presence of a third factor, scores for each new scale were calculated, along with new scores for social anxiety and social phobia as suggested by the factor structure for men and women. Given that the correlations between the first two factors and the other measures of anxiety and depression are similar to those found with the original scores (although the correlations were generally of lower magnitude, they were similar in the direction of the relation and statistical significance), they are not reported. However, in order to explore the role of the different forms of social discomfort for men and women, zero-order

and partial correlations were calculated between these scores and the other measures. These are reported in Table V. The results suggest that being uncomfortable in situations of social power is uniquely related to anxiety for women (state anxiety and social phobia) and being uncomfortable in social situations is uniquely related to social phobia symptoms for men.

**Table V.** Correlations and Partial Correlations Between Depression and Anxiety Measures and New Scores of Social Discomfort for Men and Response to Social Power for Women

	Zero-order	Partial <sup>a</sup>
<b>Social Discomfort (Men)</b>		
Social Interaction Anxiety (SIAS)	.31**	
Social Phobia (SPS)	.10	
Beck Depression Inventory	.09	-.01
Beck Anxiety Inventory	.04	-.05
SPAI		
Social Phobia	.41***	.26*
Agoraphobia	.24*	.17
Maudsley		
Checking	-.01	-.07
Cleaning	-.03	-.06
Doubting	.15	.13
Obsessions	.06	.01
Slowness	.00	.03
EMAS: State (Total)	.09	.03
Cognitive	.09	.00
Autonomic	.09	.04
<b>Response to Social Power (Women)</b>		
Social Interaction Anxiety (SIAS)	.72***	
Social Phobia (SPS)	.74***	
Beck Depression Inventory	.49***	.19
Beck Anxiety Inventory	.34***	.11
SPAI		
Social Phobia	.67***	.20*
Agoraphobia	.54***	.13
Maudsley		
Checking	.46***	.17
Cleaning	.36***	.17
Doubting	.38***	.12
Obsessions	.47***	.20*
Slowness	.09	.13
EMAS: State (Total)	.54***	.27**
Cognitive	.57***	.28**
Autonomic	.46***	.21*

<sup>a</sup>Correlations between scale and measure controlling for scores on social phobia and social interaction anxiety calculated according to factor analysis for each gender.

\* $p < .05$ .

\*\* $p < .01$ .

\*\*\* $p < .001$ .

## DISCUSSION

The current study attempted to confirm a differentiation between different fearful situations involved in social anxiety and social phobia as measured by Mattick and Clarke's Social Phobia and Social Interaction Anxiety Scales in a university student sample. In addition, we attempted to provide information on sex differences in the content of social anxiety and the symptom pattern around social anxiety. The results generally support the proposition that the fear of social interactions and the fear of scrutiny are two distinct types of social fears. Although highly related, as evidenced by the correlational results, the SIAS and SPS appear to measure different aspects of social anxiety. While the fact that some items show overlap between scrutiny fears and social interaction anxiety should promote caution in assuming that only one type of anxiety is relevant in a particular situation, the factors do separate on factor analysis and the pattern of partial correlations suggests that scrutiny fears and social interaction anxiety make unique contributions to pathology.

It appears that, overall, scrutiny fears have a stronger role in the prediction of pathology than do interaction fears, at least in a university sample. In particular, with the exception of an inverse relation between social interaction anxiety and slowness, it seems that the fear of scrutiny is uniquely related to obsessional symptoms and to the experience of cognitive and autonomic symptoms of anxiety. This is interesting in light of earlier research that suggests that the SPS is not related to the generalized subtype of social phobia that is usually more severe (Heimberg *et al.*, 1992). It is possible that this reflects the nonclinical nature of the sample; while a generalized social anxiety that is severe enough to require treatment may be indicative of a lower level of functioning than specific fears in a clinical sample, social anxiety may be more common but less impairing in a younger university sample. This may in fact be part of a normal developmental process. Bruch and Cheek (1995) note that self-conscious shyness peaks in adolescence and subsequently improves in many individuals; social anxiety may also be higher in a young adult population and decline over time as a part of normal developmental experiences. In contrast, social scrutiny fears that reflect circumscribed difficulties in a clinical sample may impede many of the necessary tasks that include public exposure associated with successfully managing the transition to university and thus be consistent with greater distress in an undergraduate sample.

While the factor analytic results support the two-dimensional nature of social fears, they also suggest that these scales may include items that are not consistent with anxiety *per se*. This third factor contrasts with earlier work by Mattick and Clarke (1989), who confirmed the presence of a single

factor on the SIAS. However, the factor structure is consistent with research by Jones, Briggs, and Smith (1986). These researchers administered a number of measures of social anxiety and shyness to a large mixed-gender sample of university students ( $n = 1213$ ) and factor analyzed the items in a single analysis. Their results supported a distinction between social anxiety, social facility (the inverse of our social discomfort factor), and a discomfort with authority. While they did not include measures of scrutiny fears specifically, and did not break down their sample by gender, their findings offer strong support for the results reported here.

Because the factor structure in the current study differed for men and women, the discussion addresses the results for men and women in turn. For men, the third factor consisted of items that were worded positively and reverse scored, suggesting a general social discomfort factor despite Mattick and Clarke's attempt to avoid reference to a general social discomfort in the development of the scales. This should underscore the caution by others that reverse scoring does not necessarily reverse the content of the question (Paulhus & Reid, 1991). However, it is not simply the wording of the questions that is at issue here. These items do not generally relate to other measures of distress. While the bivariate correlation with the SPAI suggests some overlap, the partial correlations suggest that at least some of the relation may be due to covariance with social interaction anxiety and social phobia. Thus, it raises the question whether these items reflect a discomfort with social interactions that should not be considered "pathological."

The structure of social anxiety differs for women. First, there is a blurring of the distinction between scrutiny fears and social interaction fears. In particular, some of the situations that are meant to reflect social interaction anxiety load with the items reflecting scrutiny. Women may be more scrutinized in social situations, although it also is possible that this reflects heightened levels of awareness of the social environment in women, so that they feel more observed than do men in the same situation. Alternately, women may perceive being scrutinized as more threatening than men and thus feel more anxious under equivalent levels of observation. This seems plausible given that the overall level of scrutiny fear is higher in women than men in the current sample.

Second, consistent with Jones *et al.* (1986), it was demonstrated that there is an additional dimension to social anxiety for women that seems to reflect responses to social power. These items reflect a pattern of behavior that includes difficulty talking with authority figures, difficulty in disagreeing with others or making eye contact. Consistent with a sociocultural model of personality, this may reflect differences in social roles that dictate behaviors that are appropriate for each sex (see Feingold, 1994). However,

these behaviors may be mediated by other variables such as masculinity/femininity or assertiveness that are associated with gender (Feingold, 1994) or differences in perceptions of social power. Dovidio, Ellyson, Keating, Heltman, and Brown (1988) demonstrated that nonverbal displays of authority and submissiveness vary with expectations associated with social power for *both* men and women. In any case, the relations between these items and measures of general pathology suggest that including these in a measure of social anxiety may artificially inflate social anxiety scores for a subset of women. This is supported by additional analyses with the social interaction anxiety and social phobia scales calculated without these items that resulted in consistent but lower correlations between these variables and the other measures of psychopathology. While this variable did correlate with measures of state anxiety, it is possible that this reflects the nature of any testing environment; the presence of clear authority figures in the form of an experimenter may promote more anxiety in individuals who are sensitive to differences in social power.

Although not a primary aim of the current study, the inclusion of the SPAI provided an opportunity to compare this popular measure with the scales of Mattick and Clarke. At the bivariate level, consistent with earlier work (Boone *et al.*, 1992), the scales were highly correlated. However, the unique relations between the SIAS and the SPAI, and the lack of relations between the SPS and the SPAI, suggest that the SPAI is better understood as a measure of interaction anxiety than of fear of scrutiny in university students. This is consistent with findings that associate the SPAI with daily ratings of distress in social interactions (Beidel, Borden, Turner, & Jacob, 1989; Beidel, Turner, Stanley, & Dancu, 1989). While the strong positive relations with the agoraphobia subscale and the SPS suggest that there may be some overlap in these measures, the SPS clearly samples a much broader range of situations. This breadth of sampled situations and the strong relations between the SPS and other measures of pathology suggest that the SPS is an important scale to include in research in this area.

Several limitations of the study must be acknowledged. First, these results should be replicated with the use of a clinical sample as it is possible that the experience of subclinical social interaction or scrutiny fears is substantially different than at clinically significant levels. Second, this sample may be more distressed than typical undergraduate samples as reflected in their higher levels on some of the measures compared to those found in other research; it is therefore possible that this sample is different from other samples in some important ways. These differences might explain two puzzling findings. First, it is difficult to understand the failure to replicate Mattick and Clarke's findings of a single factor for the SIAS. Second, while the factors found in the current study are similar to those found by Jones

*et al.* (1986), it is difficult to understand the failure to demonstrate social facility and difficulties with authority with both men and women, and the sample as a whole. Finally, the correlational nature of the study obviously limits conclusions regarding the nature of the relations between the variables. However, despite these limitations, the current study offers insight into the dimensions of social anxiety and raises important questions for future research.

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