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The Multiple Dimensions of the Social Anxiety Spectrum in Mood Disorders

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Abstract

Major depressive disorder and bipolar spectrum disorders are debilitating conditions associated with severe impairment. The presence of co-occurring social phobia can make the clinical course of these disorders even more challenging. To better understand the nature of social anxiety in the context of ongoing mood disorders, we report the results of exploratory factor analyses of the Social Phobia Spectrum Self-Report Instrument (SHY), a 162-item measure designed to capture the full spectrum of manifestations and features associated with social anxiety experienced across the lifespan. We examined data from 359 adult outpatients diagnosed with major depressive disorder and 403 outpatients diagnosed with a bipolar spectrum disorder. The measure was divided into its two components: the SHY-General (SHY-G), reflecting general social anxiety features, and the SHY-Specific (SHY-S), reflecting anxiety in specific situations. Exploratory factor analyses were conducted for each using tetrachoric correlation matrices and an unweighted least squares estimator. Item invariance was evaluated for important patient subgroups. Five factors were identified for the SHY-G, representing general features of social anxiety: *Fear of Social Disapproval*, *Childhood Social Anxiety*, *Somatic Social Anxiety*, *Excessive Agreeableness*, and *Behavioral Submission*. Seven specific-situation factors were identified from the SHY-S: *Writing in Public*, *Dating*, *Public Speaking*, *Eating in Public*, *Shopping Fears*, *Using Public Restrooms*, and *Unstructured Social Interactions*. The identified dimensions provide clinically valuable information about the nature of the social fears experienced by individuals diagnosed with mood disorders and could help guide the development of tailored treatment strategies for individuals with co-occurring mood disorders and social anxiety.

Introduction

The co-occurrence of mood disorders and social phobia is not only common, but is associated with negative clinical outcomes (e.g., Dilsaver & Chen, 2003; Morris et al., 2009; Otto et al., 2006; Schneier et al., 2003). Currently, little is known regarding the nature of social anxiety experienced by individuals diagnosed with mood disorders. Using data from a

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sample of outpatients with unipolar depression or bipolar disorder, we report results of a factor analytic investigation of a measure of social anxiety designed to capture the full spectrum of manifestations and features of social anxiety experienced across the lifespan. Such data are needed to guide efforts to develop more effective treatments for this particularly difficult combination of pathologies.

Social phobia is frequently estimated to be the most commonly co-occurring anxiety disorder for both major depression and bipolar disorder (Fava et al., 2000; Kessler et al., 1999; Merikangas et al., 2007), and tends to precede the onset of these disorders when they co-occur (Fava et al., 2000; Pini et al., 2006). Such findings have been used to support the “social risk” theory of depression, which posits that depressive symptoms develop to mitigate risk of exclusion from survival-enhancing social contexts (Allen & Badcock, 2003). This theory suggests that many depressive features – such as hypersensitivity to social rejection cues, low self-esteem, and social withdrawal – represent an evolutionarily-adaptive response to reduce the risk of overt social exclusion when individuals perceive that the ratio between their social value and their social burden is diminishing to dangerously low levels. This theory, moreover, provides one framework for understanding why symptoms of depression may be particularly difficult to treat when they co-occur with symptoms of social phobia.

Indeed, co-occurring social phobia is associated with earlier onset, poorer prognosis, and increased suicidality among patients with unipolar depression (Frank et al., 2011; Morris et al., 2009; Schneier et al., 2003) and bipolar disorder (Boylan et al., 2004; Dilsaver et al., 2006; Dilsaver & Chen, 2003; Perroud et al., 2007; Perugi et al., 2001; Pini et al., 2006; Simon et al., 2007). In fact, a recent prospective analysis of the STEP-BD project, containing data from one-thousand outpatients diagnosed with bipolar disorder, revealed that co-occurring social phobia was the only anxiety disorder associated with all five of the negative outcomes observed: fewer well days, longer time to recovery of depressive symptoms, increased likelihood of relapse, poorer quality of life, and increased role dysfunction (Otto et al., 2006).

Little has been reported about the lifetime manifestations of social anxiety experienced by individuals with mood disorders. This may be the consequence of an overreliance on the categorical definitions of the disorders codified in the DSM. In contrast, recent taxometric studies have demonstrated that social fear (Kollman et al., 2006) and social anxiety (Ruscio, 2010) are best described by latent structures that exist on a continuous dimension from normal to abnormal functioning. In fact, Ruscio (2010) demonstrated that the dimensional conceptualization of social anxiety was a stronger predictor of future mood disorder onset, suicidal ideation, and suicide attempt than was categorical DSM-IV diagnosis.

Recognizing the need to develop a measure of social anxiety that captures the full range of manifestation experienced across the entire spectrum of illness, Cassano and colleagues developed the social phobia spectrum instrument (SHY). The SHY was developed explicitly to capture features and phenomena not adequately addressed in the standard diagnostic system. An important component of the spectrum model of psychopathology, from which the SHY was developed, is that it attempts to capture the broad range of manifestations of mental disorder from core symptoms to temperament, behavioral traits, and lifestyles - regardless of whether the full diagnostic criteria are met (Cassano et al., 1999). The model assumes that even subtle manifestations of illness can be clinically meaningful and may point to an underlying diathesis that is shared with patients who display more severe symptoms.

The SHY has strong psychometric properties and convergent validity (Dell’Osso et al., 2000; Dell’Osso et al., 2002), however, no investigation of the measure’s underlying structure has been published. In the current study, we examine this structure using exploratory factor analysis in a sample of adult outpatients with either major depressive disorder or bipolar disorder. Given the importance of assessing social anxiety in patients with mood disorders, we aim to uncover the latent structure of lifetime social anxiety in this population. The results of this investigation could foster careful examinations into the role of specific dimensions of social anxiety in the clinical course and treatment outcomes of patients with primary mood disorders.

Materials and Methods

Sample Characteristics

The sample consisted of adult outpatients whose data were drawn from two study cohorts: 359 outpatient participants from a two-site (Pittsburgh, PA and Pisa, Italy) RCT for unipolar depression (MH65376, E. Frank, PI), and 403 outpatient participants from a multi-center RCT for bipolar spectrum disorders (Fagiolini et al., 2005). Full descriptions of the studies’ procedures have been published elsewhere (Fagiolini et al., 2005; Frank et al., 2011). All patients in both cohorts were screened using the Structured Clinical Interview for DSM-IV (SCID-I; First et al., 1995). Depressed participants were required to meet DSM-IV criteria for current major depression and score > 15 on the 17-item Hamilton Rating Scale for Depression (Hamilton, 1960). Patients with bipolar spectrum disorders were required to meet DSM-IV criteria for Bipolar I, Bipolar II, Bipolar NOS, or Schizoaffective disorder - Bipolar subtype. Participants in both cohorts provided written informed consent. Table 1 lists the demographic and clinical features of patients from the two samples.

SHY Measure

Patients in both cohorts completed the 162-item, self-report version of the SHY (Dell’Osso et al., 2002). Originally developed as a clinical interview, the SHY has been shown to have strong psychometric properties, good convergent validity with the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987), and strong correspondence between interview and self-report versions (Dell’Osso et al., 2002). The SHY was developed simultaneously in English and Italian by a cross-national group of researchers who were either bilingual or who had substantial knowledge of both languages (Frank et al., 2005). The SHY consists of items grouped into 4 domains: 1) social phobic traits during childhood; 2) interpersonal sensitivity; 3) behavior inhibition and somatic complaints; and 4) specific anxieties. The SHY was specifically designed to measure two distinct kinds of phenomena: general features associated with social anxiety (represented by the first 64 items) and particular anxiety responses associated with 14 specific social situations (represented by the remaining 98 items). In order to retain this distinction, the measure was divided into its two components, the SHY-General (SHY-G) reflecting general social anxiety and the SHY-Specific (SHY-S) reflecting anxiety in specific situations. Each was factor analyzed separately. A review and comparison of the Italian and English versions revealed 5 items that were not adequately comparable between the measures. These items were removed from the analysis, as were embedded summary items.¹ In total, 61 general trait items and 64 specific anxiety situation items were factor analyzed.

¹Embedded summary items are redundant with items that come before them. Including them in the factor analyses would have artificially inflated the inter-item correlations. Therefore, these items were removed before conducting the analyses.

Statistical Analyses

The frequency of item endorsement and the point-biserial correlations between each item and the appropriate total score were calculated. Responses on the SHY represent yes/no dichotomies. As such, tetrachoric correlations were used to estimate all models. Factor analyses were conducted in two steps. In step 1, the initial exploratory factor analysis was conducted using an oblique promax rotation, and models were estimated via the unweighted least squares estimator implemented in MPLUS version 5 software (Muthen & Muthen, 2009). Factor loadings > 0.40 were considered to be salient. The number of factors to be extracted was based on both empirical (scree plot) and theoretical considerations, as well as the extent to which a given model (a) retained at least three salient item loadings on each factor; (b) produced adequate internal consistency ($\alpha > .70$) for unit-weighted salient items; (c) maximized parsimonious coverage and simple structure (i.e., achieved maximum assignment of items to factors while minimizing the number of items that loaded on multiple factors); and (d) was interpretable. In order to assess the extent to which the items functioned similarly across levels of important patient characteristics, item invariance was evaluated for four variables: gender, age, study of origin (reflecting diagnosis of unipolar vs bipolar illness), and country in which data were collected (reflecting the Italian vs. English versions of the measure). Invariance was assessed using MIMIC (Multiple Indicators, Multiple Causes) models (Muthén, 1989). These models examine the relationship between the covariates and individual items and explicitly test whether the items function differently for different subgroups of patients. Items identified as functioning differentially between subgroups were removed from the final pool of items, as were items that cross-loaded on multiple factors in the initial analyses. In Step 2, final exploratory factor models were constructed for the reduced item sets for the SHY-G and SHY-S, respectively.

Results

Items from the SHY-G with the highest endorsement frequencies were: being very worried that people might be critical, often feeling more comfortable in small groups, and ever worrying about disapproval or hostility from others. From the SHY-S, the most frequently endorsed items were: feeling uncomfortable when speaking, singing or dancing in front of others, feeling uncomfortable when performing in front of others, and feeling uncomfortable when entering or leaving a room during a meeting or gathering that is in progress. All SHY-G and SHY-S items had medium to substantive correlations (range 0.30–0.66) with the respective total scores. Endorsement frequencies and item-total correlations are reported in the Supplemental Tables S1a and S1b.

SHY-General (SHY-G) Results

Step 1: Initial factor structure—The scree plot suggested a six-factor solution, whereas the original design of this portion of the SHY was intended to contain 3 subscales. Consequently, oblique solutions ranging from 3 to 6 factors were examined. The model retaining 5 oblique factors met all pre-specified criteria. One item loaded on more than one factor. When this item was removed, the factor model retained 47 items, each loading $> .40$ on exactly one factor. In addition, seven items were found to function differently as a function of patient characteristics and were thus removed from the final item pool (see Supplemental Information for details regarding these items).

Step 2: Final factor solution—The remaining 40 items were factor analyzed. Again, the five-factor solution met all pre-specified criteria. Note that the loading for one item (#37) was great than 0.40 in the initial analyses and fell just below the threshold, to 0.38, in the final analysis. Table 2a displays the full factor-loading matrix and Table 2b shows the correlations among the factors (range: 0.40–0.60). The five factors are:

SHY-G.1: Fear of Social Disapproval (Cronbach's alpha=.88): This factor contains several items assessing feelings of inadequacy, inferiority, and fears regarding the disapproval of others. Salient items include traits such as: worrying about being unappealing to others, worrying about being considered to be stupid, clumsy, or ridiculous, and having difficulty saying no to requests.

SHY-G.2: Childhood Social Anxiety (alpha=.84): Items reflecting social sensitivity, difficulty in social situations, and avoidance behaviors experienced during childhood comprise this factor. The two highest loading items are having been told that that one was "very shy" as a child and having found it difficult to make new friends as a child. In addition to items specifically focused on childhood, one general item (being particularly embarrassed or uncomfortable meeting new people) also loaded on this factor.

SHY-G.3: Somatic Social Anxiety (alpha=.78): This factor contains several items assessing the degree of physiological anxiety one experiences in social situations, including dizziness, blushing, gastro-intestinal complaints, and trembling.

SHY-G.4: Excessive Agreeableness (alpha=.81): This factor represents difficulty in stating one's opinion, particularly if that opinion is in disagreement with important others. Salient items on this factor include: being unable to disagree during discussions, avoiding the expression of disagreement or disapproval, and experiencing an inability to state one's opinions during a discussion. One item (being more comfortable holding subordinate positions in a group) was identified for this factor in the initial factor analysis, but fell slightly short of the .40 criterion in the final model (factor loading=.38).

SHY-G.5: Behavioral Submission (alpha=.81): Items with salient loadings on this factor represent difficulty knowing how to manage one's eye gazes and body posture during social interactions, as well as being overly concerned that one's actions might be misinterpreted.

SHY-Specific (SHY-S) Results

Step 1: Initial factor structure—The scree plot suggested a possible 7-factor solution, whereas the original design of this portion of the SHY instrument was composed of 14 subscales. Consequently, oblique solutions ranging from 7 to 14 factors were initially examined. The model retaining 7 oblique factors met all pre-specified criteria. No items from the SHY-S loaded on more than one factor. This factor model retained 49 items. Eight of these items functioned differentially across patient subgroups at $p < .05$, and were eliminated from the final item pool (see Supplemental Materials).

Step 2: Final factor solution—The remaining 41 items were factor analyzed, and the seven-factor solution again met all pre-specified criteria. Table 3a displays the full factor-loading matrix and Table 3b shows the correlations between the factors (range:0.30-0.63). The seven factors are:

SHY-S.1: Writing in Public (Cronbach's alpha=.81): This factor contains several items reflecting fears about writing in public. The fears include: concern over making a mistake, writing too slowly, trembling, and having to explain what is written.

SHY-S.2: Dating (alpha=.85): Salient items loading on this factor tap feelings of embarrassment or discomfort involving romantic relationships. Specific items tap embarrassment regarding physical contact, giving gifts, inviting someone over, and asking someone out on a date.

SHY-S.3: Public Speaking (alpha=.88): The third factor contained items reflecting concerns over public speaking. Several items tapped general concerns over speaking or performing in public, and three items assessed feelings of discomfort at speaking up during professional meetings.

SHY-S.4: Eating in Public (alpha=.86): This factor contained three items that each assessed anxiety experienced when eating in front of others.

SHY-S.5: Shopping Fears (alpha=.83): Items with salient loadings on this factor assessed feelings of embarrassment and discomfort when shopping, particularly when interacting with clerks. One additional item not specific to shopping also loaded saliently on this factor (feeling self-conscious when asking for directions).

SHY-S.6: Using Public Restrooms (alpha=.80): Three items loaded on this factor, and all tapped feeling embarrassed when urinating or defecating in a public restroom.

SHY-S.7: Unstructured Social Interactions (alpha=.90): The seventh and final factor contained several items regarding feeling fear and/or embarrassment about engaging in unstructured social interactions.

Discussion

This study provides empirical factor structures of general and specific manifestations of social anxiety experienced by individuals diagnosed with mood disorders. These factors capture and extend current DSM-IV social anxiety disorder criteria. For example, among the general factors, *Fear of Social Disapproval* assesses the key DSM criterion involving fear of embarrassing and/or humiliating oneself in social situations. Yet, this factor also captures a broad array of fears regarding possible negative evaluations by others and/or general feelings of inadequacy experienced across social situations. Similarly, the general *Somatic Social Anxiety* factor reflects DSM criteria related to an array of somatic or panic-like bodily sensations that may be associated with anxiety-provoking social situations.

Extending beyond current DSM criteria, the *Childhood Social Anxiety* factor captures manifestations of childhood social anxiety such as shyness, social inhibition and avoidance. Such information may help to distinguish the temporal sequence of social anxiety and mood symptoms among comorbid patients. For some patients, childhood social anxiety may represent an important *causal or contributing* factor to subsequent mood disorder onset. For others without a childhood history, current social anxiety symptoms may represent a *consequence* of disabling or potentially embarrassing mood disorder symptoms or behaviors (such as those that may occur during manic episodes). The *Excessive Agreeableness* and *Behavioral Submission* factors represent general factors that are not well represented by any DSM criterion for social anxiety. Both dimensions are consistent with Allen & Badcock's (2003) social risk hypothesis of depression, as well as with empirical work examining the social behaviors of individuals with social anxiety. For example, Russell and colleagues (2011) found that anxiety experienced during naturally occurring social interactions was associated with increased submissive behaviors, but only for individuals with social anxiety disorder. Moreover, socially phobic individuals were observed to increase agreeable behaviors to a greater extent than healthy controls under conditions of perceived emotional security. As compared with healthy controls, individuals with social phobia have also been shown to avoid the eye gaze of others (Moukheiber et al., 2010), focus on non-eye regions of the face and head when looking at facial stimuli (Horley et al., 2003), and assume that others are able to gaze at them over a wider visual extent (Gamer et al., 2011).

In addition to the five general social anxiety spectrum factors noted above, seven situation specific factors were also identified. These dimensions appear to be the most closely related to other measures of social anxiety, such as the Liebowitz Social Anxiety Scale (LSAS; Liebowitz, 1987), for which recent analyses (Oakman et al., 2002) identified four factors: Social Interaction, Public Speaking, Eating and Drinking, and Observation. Thus, the seven SHY-S factors, which also include *Writing in Public*, *Dating*, *Shopping Fears*, and *Using Public Restrooms*, appear to assess a broader array of anxiety-inducing social situations. The fact that the constituent items loaded on separate factors supports the clinical intuition that an individual with features of social phobia may experience anxiety in one type of social setting, but not in others. Indeed, Holt and colleagues (1992) found substantial heterogeneity among patients with social anxiety in the specific situations that elicited anxiety, despite the fact that nearly 60% of socially anxious patients report feeling anxious in more than one situation. Thus, the seven situation-specific dimensions identified in the SHY may help clinicians to capture important differences in social anxiety that may be useful in planning individualized treatments.

Limitations

The goal of the present work was to identify the structure of lifetime manifestations of social anxiety in individuals with diagnosed mood disorders. Given the effect of social anxiety on the course and treatment outcomes of both unipolar and bipolar depression (e.g., Dilsaver & Chen, 2003; Morris et al., 2009; Otto et al., 2006; Schneier et al., 2003), we view this work as the first step toward identifying those aspects of social anxiety that are most associated with poor outcomes in individuals with mood disorders. Thus, we view the design of the present study, which included a large sample of individuals with a variety of mood disorder diagnoses, to be a significant strength. This design does, however, limit some of the conclusions that can be drawn from these data. First, these exploratory factor analyses were conducted on a sample of patients with mood disorders, not on a sample of individuals with social phobia. In fact, only 9% of the patients with depression and 20% of those with bipolar disorder met criteria for lifetime social phobia. The factors identified herein will first need to be confirmed in a sample of patients with social phobia before they can be generalized to individuals with that disorder. Moreover, future work will be needed to examine relationships between the SHY and other social anxiety instruments (e.g., the LSAS) in patient and non-patient samples. Second, the SHY measure has been used in few prior reports; thus, further study is required to evaluate its psychometric properties across populations. Indeed, we hope that the current report encourages others to examine the utility of the SHY across clinical and non-clinical samples. Third, the items of the SHY were developed to represent the collective theoretical assumptions and clinical experiences of the group of scientists who designed the instrument. The clinical utility of the factors identified herein is currently an open question to be answered by future work. Fourth, because the SHY is a lifetime assessment, it is open to possible recall bias. While we did not observe differential item function on the basis of diagnostic category, it is possible that depressed mood state had an impact on the scores of the SHY measure. Thus, future work should examine the measures' test-retest reliability within individuals across mood states. Fifth, the decision to factor analyze separately the two halves of the SHY instrument was made *a-priori*, in order to ensure that the theoretical distinction between the general and situation specific aspects of social anxiety remained intact. This analytic framework essentially treats each half of the SHY as a separate instrument. The utility of this approach will be examined in future work by determining the associations between each of the SHY dimensions and clinical outcomes. Sixth, a total of 15 items displayed differential functioning across important patient characteristics, and these items were removed in order to identify the final factor solutions. Differential functioning for many of these items should not be surprising. For example, two of these items assessed concern over oral academic examinations and

were found to function differently between American and Italian samples. In Italy, oral examinations are extremely common, whereas in the US school system, they tend to be rare. Given that the ultimate goal of the spectrum instrument project is to develop measures that can be used in the same way across a wide variety of populations, it was decided to drop these items.

Future Directions

Given the long-term morbidity associated with comorbid depression and anxiety (Coryell et al., 2012), it will be critically important for future work to elucidate relationships between features of anxiety and depression across the lifespan. In addition to the SHY instrument, other psychopathology spectrum instruments have been developed to examine lifetime manifestations of mood, panic, separation anxiety, generalized anxiety, and OCD symptoms and features. In future work, we plan to examine relationships among these key dimensions of affective- and anxiety-related psychopathology. While beyond the scope of the current report, these analyses may provide valuable insight into relationships among mood symptoms, separation anxiety, and social avoidance; mania and social anxiety; and phobic avoidance and panic. A clearer understanding of these relationships could have enormous clinical utility for case conceptualization, treatment planning, and treatment development.

Given the negative clinical consequences of co-occurring social anxiety and mood disorders, future research should also examine associations between specific dimensions of social anxiety and treatment outcomes, and identify optimal SHY thresholds for use in clinical decision making. Indeed, a recent study found that high total scores on the SHY were associated with longer time to remission using interpersonal psychotherapy or escitalopram (Frank et al., 2011). Individuals with elevated scores on particular dimensions of social anxiety may, however, have different outcomes and/or require different treatments (e.g., monoamine oxidase inhibitors, Liebowitz et al., 1992). Finally, given the association between co-occurring social anxiety, suicidal ideation, and substance abuse, future work should examine whether particular social anxiety features could be used to direct early detection, intervention, and prevention efforts.

Conclusions

Exploratory factor analyses identified dimensions of general and specific manifestations of social anxiety that may be clinically relevant for individuals diagnosed with mood disorders. These dimensions can be used to evaluate the effectiveness of mood disorder treatments as a function of lifetime manifestations of social anxiety. Moreover, clinicians may be able to use these dimensions to develop individually-tailored treatment strategies for patients with mood disorders that better address lifetime social anxiety.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Demographic and Clinical Characteristics

Demographic/Clinical Feature	Unipolar (N=359)	Bipolar (N=403)
Age	39.6(12.2)	44.7 (14.6)
Gender (%F)	71%	63%
Race (% Caucasian)	92%	82%
Marital status (% Married) ^a	39%	36%
Employment (% Employed) ^b	53%	22%
Education ^b		
< 9 years	14%	1%
9 - 11 years	1%	3%
12 years	5%	20%
13-15 years	45%	37%
16 years	12%	24%
> 16 years	22%	15%
Mood disorder		
MDD	100%	
Bipolar I		73%
Bipolar II		22%
Other Bipolar		3%
Schizoaffective		2%
Age of onset	27.1 (12.6)	21.4 (10.6)
Comorbid Lifetime Social Anxiety Disorder	9%	20%
Any other Lifetime Axis I diagnosis	60%	79%
Clinical Status ^a		
Depressed		
Meets Criteria	100%	22%
Subthreshold		10%
Manic		
Meets Criteria		2%
Subthreshold		4%
Mixed		
Meets Criteria		5%
Subthreshold		3%
Recovering ^c		17%
Recovered ^d		37%

^a:Note. Bipolar N = 401^b: Bipolar N = 402^c: CGI<2 for < 8 weeks^d: CGI<2 for 8 weeks.

Table 2a

SHY-General Factor Loading Matrix

Item #	Item	SHY-G.1	SHY-G.2	SHY-G.3	SHY-G.4	SHY-G.5
19	ever ...worried about disapproval or hostility from others?	0.88	0.00	-0.12	0.05	0.01
15	ever ...worried that you might be unappealing to others?	0.83	0.16	0.00	-0.19	0.02
26	often felt ...you were physically unattractive?	0.72	0.07	-0.12	-0.07	0.12
16	ever ...worried that others considered you stupid, clumsy or ridiculous?	0.77	0.12	0.02	-0.17	0.09
25	often felt ...that no one could be interested in you romantically?	0.70	0.15	-0.17	-0.07	0.23
14	ever ...felt that the fear of being judged by others affected your relationships?	0.66	0.13	0.02	-0.01	0.04
18	ever ...worried about hurting people's feelings because of something you said or did?	0.64	0.04	0.10	-0.04	-0.09
33	often felt ...inadequate in everyday relationships, even with people like co-workers, sales people, peers?	0.60	-0.01	0.01	0.19	0.15
31	often felt ...that it was difficult to accept the advances of someone because you couldn't believe that he or she was really interested in you?	0.53	0.11	0.10	-0.08	0.13
20	often felt ...put upon or resentful because you couldn't say "no" to a request?	0.59	-0.16	0.26	0.22	-0.28
32	often felt ...that your partner was judging your performance during sexual activities?	0.56	-0.11	0.20	-0.05	0.10
21	often felt ...that you got involved in things when you didn't want to because you couldn't say "no?"	0.55	-0.16	0.33	0.24	-0.31
35	often felt ...extremely uncomfortable or wounded when others did not approve of your ideas or what you do?	0.48	-0.04	0.16	0.14	0.06
56	Do you or ever told you ...played a role (not being yourself), in order to be more comfortable?	0.42	-0.13	0.15	0.13	0.17
22	often felt ...particularly uncomfortable working or playing as part of a team?	0.47	0.23	-0.04	0.13	-0.02
1	when child...were very shy?	-0.11	0.87	0.03	0.04	0.05
6	when child...found it difficult to make new friends?	0.23	0.71	-0.17	0.00	0.04
7	when child...avoided or wanted to avoid social activities outside of school such as parties, sports, or playing with other children?	0.34	0.56	-0.03	-0.03	-0.06
5	when child...did poorly at school because of shyness?	0.04	0.73	0.14	0.02	-0.08
9	when child...felt embarrassed and uncomfortable speaking with people you didn't know very well?	0.14	0.73	0.00	0.05	-0.01
2	when child...were particularly frightened when you had to speak or	-0.09	0.72	0.32	0.05	-0.13

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Item #	Item	SHY-G.1	SHY-G.2	SHY-G.3	SHY-G.4	SHY-G.5
	write in front of your classmates?					
10	when child...were very quiet and sometimes unable to speak at all?	0.02	0.66	0.17	0.02	0.02
23	often felt ...particularly embarrassed or uncomfortable meeting a new person?	0.32	0.45	0.02	0.07	0.11
63	during social situations, often ...suffered from nausea, diarrhea or stomach ache?	0.12	0.02	0.79	-0.09	-0.04
59	during social situations, often ...trembled?	-0.10	0.10	0.82	-0.02	0.03
62	during social situations, often ...felt dizzy?	-0.10	0.09	0.74	-0.04	0.12
60	during social situations, often ...felt your heart pounding?	0.05	0.10	0.73	-0.03	0.03
64	during social situations, often ...had the urge to urinate?	0.07	-0.07	0.65	-0.01	-0.03
58	during social situations, often ...blushed?	-0.08	0.27	0.59	-0.06	0.06
55	Do you or ever told you ...find you lose your breath when you talk to others?	0.03	-0.02	0.59	0.00	0.23
39	often felt ...unable to disagree during a discussion?	-0.03	0.07	-0.07	0.96	0.09
40	Have you often avoided, if possible, disagreeing with or expressing disapproval to others?	0.01	0.11	0.03	0.82	0.00
38	often felt ...unable to state your opinions during a discussion?	-0.03	0.10	-0.06	0.82	0.16
<i>37</i>	<i>often felt ...more comfortable holding a subordinate position in a group, rather than being the leader?</i>	<i>0.05</i>	<i>0.26</i>	<i>0.06</i>	<i>0.38</i>	<i>0.06</i>
46	Do you or ever told you ...find it difficult to look others straight in the eye?	0.01	0.02	-0.04	0.09	0.88
53	Do you or ever told you ...find it difficult to know where to look when talking to someone?	0.11	0.02	0.03	0.01	0.75
45	Do you or ever told you ...lower your body and your head?	0.04	0.07	0.14	0.05	0.57
48	Do you or ever told you ...feel afraid to look someone in the eyes because you felt that they could tell what you were thinking or feeling?	0.09	-0.14	0.28	-0.01	0.58
54	Do you or ever told you ...find it difficult to know what to do with your hands in social situations?	0.19	0.01	0.19	0.10	0.50
47	Do you or ever told you ...feel afraid that someone might misinterpret your glance?	0.30	-0.08	0.23	0.04	0.41

Note. The loading for the italicized entry, Item #37, fell above the cutoff of .40 in the initial analysis and fell just below the cutoff (.38) in the final factor analysis.

Table 2b

SHY-General Factor Correlations

	SHY-G.1	SHY-G.2	SHY-G.3	SHY-G.4
SHY-G.1				
SHY-G.2	0.52			
SHY-G.3	0.60	0.43		
SHY-G.4	0.55	0.46	0.52	
SHY-G.5	0.55	0.48	0.50	0.40

Table 3a

SHY-Specific Factor Loading Matrix

Item #	Item	SHY-S.1	SHY-S.2	SHY-S.3	SHY-S.4	SHY-S.5	SHY-S.6	SHY-S.7
79	writing in public, sometimes afraid ...someone might ask you to explain what you have written?	0.68	0.02	0.13	-0.08	0.13	0.04	0.02
82	writing in public, sometimes afraid ...your handwriting might be criticized?	0.68	0.02	-0.12	-0.06	0.07	-0.01	0.22
81	writing in public, sometimes afraid ...you might make a mistake?	0.80	-0.02	0.05	0.00	0.14	-0.07	0.04
80	writing in public, sometimes afraid ...you might write too slowly or be unable to do it?	0.84	0.05	0.14	0.05	-0.02	-0.05	-0.08
84	Have you often avoided writing or signing official documents in front of other people?	0.83	-0.04	-0.18	0.06	-0.02	0.09	0.07
78	writing in public, sometimes afraid ...your hand might tremble or shake?	0.79	-0.01	0.19	0.09	-0.09	-0.05	-0.11
151	dating, often embarrassed or uncomfortable....initiate physical contact, such as holding hands, hugging, or kissing, someone you liked?	-0.05	0.81	0.12	0.03	-0.03	0.01	0.04
149	dating, often embarrassed or uncomfortable....give a present to someone you liked?	0.02	0.76	-0.02	-0.06	0.18	-0.03	0.01
147	dating, often embarrassed or uncomfortable....ask someone you liked to come to your house or apartment?	0.10	0.82	0.01	0.06	-0.05	0.07	-0.01
146	dating, often embarrassed or uncomfortable...ask someone you liked to go out on a date, like to a movie, to dinner or to a club?	0.01	0.83	-0.05	-0.09	0.03	0.08	0.10
150	dating, often embarrassed or uncomfortable....express romantic feelings to someone you liked?	-0.03	0.96	0.04	-0.04	-0.01	0.02	-0.04
103	often embarrassed or uncomfortable ...when speaking, singing or dancing in front of others?	-0.13	0.01	0.63	0.02	0.15	0.08	0.17
107	often embarrassed or uncomfortable ...that your voice might tremble or you might stammer or be unable to speak clearly, when speaking aloud in public or taking an oral examination?	0.22	0.01	0.55	-0.03	-0.02	0.08	0.17
104	often embarrassed or uncomfortable ...when performing in front of an audience?	-0.14	0.03	0.69	-0.08	0.12	0.10	0.13
106	often embarrassed or uncomfortable ...before a public presentation, so that you have to prepare it excessively and carefully?	0.10	-0.02	0.66	0.17	-0.10	0.10	0.05
74	during meeting, often embarrassed or uncomfortable ...if you must ask or answer questions?	0.09	0.03	0.74	0.02	0.14	-0.06	0.00
72	during meeting, often embarrassed or uncomfortable ...when speaking up or giving a report to your colleagues?	0.09	0.06	0.77	0.05	-0.05	-0.05	0.10

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Item #	Item	SHY-S.1	SHY-S.2	SHY-S.3	SHY-S.4	SHY-S.5	SHY-S.6	SHY-S.7
73	during meeting, often embarrassed or uncomfortable ...anticipating that someone might call upon you to speak?	0.04	0.03	0.90	0.11	-0.01	-0.13	0.01
91	eat, often embarrassed or uncomfortable ...with guests, even in your home?	0.09	-0.04	0.02	0.69	0.11	0.17	0.03
92	eat, often embarrassed or uncomfortable ...in front of anyone?	0.03	-0.01	0.10	0.76	-0.04	0.21	-0.02
90	eat, often embarrassed or uncomfortable ...in a restaurant or at a party even when you're with friends or relatives?	0.03	-0.03	0.07	0.89	0.05	0.12	-0.10
115	often self-conscious or embarrassed ...about asking directions and preferred to take the risk of getting lost?	-0.02	0.01	0.23	0.05	0.63	0.03	-0.07
158	shopping, often embarrassed or uncomfortable ...leaving a shop without buying anything?	0.11	0.01	-0.07	0.00	0.64	0.05	0.11
155	shopping, often embarrassed or uncomfortable ...when shopping?	0.09	-0.02	-0.13	0.24	0.69	0.01	0.02
157	shopping, often embarrassed or uncomfortable ...when you have to ask for information?	-0.02	0.02	0.18	-0.04	0.80	-0.04	0.09
159	shopping, often embarrassed or uncomfortable ...when you have to return something to a store?	0.06	-0.04	0.05	-0.03	0.75	0.08	0.02
156	shopping, often embarrassed or uncomfortable ...when sales people ask if they can help you?	0.02	0.08	0.00	0.02	0.89	-0.04	-0.07
86	often embarrassed or uncomfortable ...when you had to give a urine or stool sample?	0.12	-0.01	0.03	0.12	-0.02	0.69	0.06
87	often embarrassed or uncomfortable ...that somebody might see or hear you while urinating or defecating?	0.00	0.13	0.01	0.13	-0.04	0.80	-0.03
85	often embarrassed or uncomfortable ...when urinating or defecating in a public bathroom?	-0.08	0.00	-0.05	0.16	0.08	0.85	0.01
124	with strangers, often ...afraid of being discourteous?	0.13	0.05	-0.13	0.17	0.02	0.14	0.45
135	at a party or with friends, often ...embarrassed of uncomfortable?	-0.01	0.07	-0.10	0.39	0.17	-0.09	0.54
123	with strangers, often ...embarrassed or worried?	0.01	-0.04	0.17	0.24	0.00	0.07	0.55
139	at a party or with friends, often ...afraid of being judged?	0.14	0.07	0.10	0.17	-0.01	-0.08	0.59
136	at a party or with friends, often ...afraid of meeting people?	-0.09	0.08	0.05	0.34	0.11	-0.12	0.56
132	often embarrassed or uncomfortable ...when people in authority asked you a question?	0.08	-0.09	0.25	-0.23	0.04	0.15	0.71
126	with strangers, often ...afraid that you wouldn't know what to say?	-0.07	0.05	0.13	0.18	0.00	0.02	0.66
130	often embarrassed or uncomfortable ...when you are in the company of people in authority?	0.08	-0.04	0.11	-0.28	0.04	0.15	0.81
131	often embarrassed or uncomfortable ...when you had to introduce	0.06	0.01	0.13	-0.25	-0.01	0.16	0.81

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Item #	Item	SHY-S.1	SHY-S.2	SHY-S.3	SHY-S.4	SHY-S.5	SHY-S.6	SHY-S.7
	yourself to people in authority?							
138	at a party or with friends, often ...afraid of not being interesting?	0.04	0.13	0.08	0.14	-0.03	-0.11	0.68
137	at a party or with friends, often ...afraid of not being able to make conversation?	-0.03	0.08	0.08	0.31	-0.02	-0.21	0.71

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Table 3b

SHY-Specific Factor Correlations

	SHY-S.1	SHY-S.2	SHY-S.3	SHY-S.4	SHY-S.5	SHY-S.6
SHY-S.1						
SHY-S.2	0.31					
SHY-S.3	0.49	0.46				
SHY-S.4	0.42	0.45	0.43			
SHY-S.5	0.52	0.49	0.52	0.50		
SHY-S.6	0.47	0.30	0.45	0.34	0.46	
SHY-S.7	0.56	0.56	0.63	0.53	0.61	0.47