"It's not just the butterflies, it's that I don't know": Intolerance of Uncertainty as a Predictor of Social Anxiety

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Introduction

- Social anxiety (SA) typically refers to levels of anxiety or apprehension experienced in social or performance situations (Watson & Friend, 1969).
- Individuals with high SA fear being negatively evaluated by others, making a bad impression, or acting in a way that might be embarrassing (Antony & Swinson, 2000).
- People with high SA also tend to have high levels of anxiety sensitivity (AS) – the tendency to catastrophically misinterpret anxiety sensations (Taylor, 1999) – particularly related to socially observable anxiety reactions (Rector, Szacun-Shimizu, & Leybman, 2007).
- Recent research has suggested that intolerance of uncertainty (IU) may play an important role in several anxiety disorders, including social anxiety disorder (SAD; Carleton, Norton, & Asmundson, 2007; Carleton, Sharpe, & Asmundson, 2007).
- The present investigation was designed to determine:
  - (1) The extent of the relationship between measures of SA and measures of IU, and
  - (2) Whether IU accounts for symptoms of SA above and beyond what is accounted for by fears of negative evaluation and AS.

Method

- Participants included 141 undergraduates
  - 32 men, ages 18-34 (*M* = 20.2; *SD* = 2.7)
  - 109 women, ages 18-45 (*M* = 19.7; *SD* = 3.3)
- Demographics were supplemented with:
  - Anxiety Sensitivity Index-3 (ASI-3), Fear of Socially Observable Anxiety Reactions subscale (Social subscale; Taylor et al., 2007)
  - Brief Fear of Negative Evaluation Scale-II (BFNE-II; Carleton et al., 2007)
  - Social Phobia Inventory (SPIN; Connor et al., 2000)
  - Social Anxiety and Distress Scale, Likert Scale (SADS; Watson & Friend, 1969)
  - The aggregated short form of the Social Interaction Anxiety Scale and Social Phobia Scale (SIPS; Carleton et al., in press)
- A Pearson correlation was calculated to assess the interrelationships between all variables.
- A series of hierarchical linear regressions were performed to assess the variance accounted for by IU in symptoms of SA after controlling for AS and fear of negative evaluation.
- Each of the SA symptom measures were entered individually as dependent variables, with the ASI-3 Social subscale and BFNE-II entered as independent variables in the first step, followed by the IUS-12 in the second step of the regression.

Results

- There were no significant differences between men and women on any of the dependent variables.
  - ASI-3 Social subscale, $t(139)=.94$, $p>.10$, $r^2=.01$
  - BFNE-II, $t(139)=1.19$, $p>.10$, $r^2=.01$
  - SPIN, $t(128)=.21$, $p>.10$, $r^2<.01$
  - SADS, $t(128)=.83$, $p>.10$, $r^2=.01$
  - SIPS, $t(127)=1.54$, $p>.10$, $r^2=.02$
- All of the Pearson correlations were statistically significant (all $ps<.05$; Table 1).

Table 1. Correlations

	IUS-12	ASI-3 Social	BFNE-II	SPIN	SADS
ASI-3 Social	.54	-			
BFNE-II	.50	.61	-		
SPIN	.69	.63	.66	-	
SADS	.60	.43	.45	.81	-
SIPS	.67	.56	.59	.83	.83

- Results of the regression analyses suggested that when the ASI-3 Social subscale and the BFNE-II were statistically controlled using hierarchical linear regression, the IUS continued to account for additional variance in the SPIN (10%), the SADS (13%), and the SIPS (12%) (see Tables 2-4).

Discussion

- The ASI-3 Social subscale, BFNE-II, and IUS-12 scores were each strongly ($r>.50$; Cohen 1988) associated with almost all of the SA symptom scores. The IUS-12, in particular, had consistently higher correlations with each SA measure relative to the ASI-3 Social subscale and the BFNE-II.
- In each of the regressions, IU continued to account for a significant and substantial portion of variance in SA symptoms after controlling for fears of socially observable anxiety reactions and fears of negative evaluation; moreover, for the SIPS, the addition of the IUS-12 resulted in the ASI-3 Social subscale becoming non-significant. Regarding the SADS, the ASI-3 Social subscale and the BFNE-II became non-significant when the IUS-12 was included.
- Overall, the results suggest that the ability to tolerate the uncertainty associated with social situations may be a critical element in determining SA. Indeed, for persons with SAD, a great deal of uncertainty is often associated with SA before a social encounter (catastrophizing about possible occurrences), during the social encounter (catastrophizing about ambiguous stimuli), and/or after the social encounter (catastrophizing about possible consequences).
- Treatments that focus on increasing tolerance for the uncertainty inherent in social situations may provide help in relieving SAD symptoms. Future research should evaluate IU longitudinally in samples diagnosed with and then treated for SAD .

Table 2. Regression model, ANOVA summary table, Dependent Variable: SPIN

	SS	*df*	*MS*	*F*	*p*	Correlations
Model 1: $R^2\Delta = .48$						
Regression	12337.2	2	6168.60	65.17	<.001	
Residual	13061.4	138	94.65			
Total	25398.6	140				
Model 2: $R^2\Delta = .57$						
Regression	14725.5	3	4908.48	63.00	<.001	
Residual	10673.2	137	77.91			
Total	25398.6	140				

	β	*t*	*p*	Zero-order	Partial	Part
Model 1 (Constant)		.21	.84			
ASI-3 Social Subscale	.36	4.66	<.01	.61	.37	.28
BFNE-II	.42	5.42	<.01	.64	.42	.33
Model 2 (Constant)		-3.69	<.01			
ASI-3 Social Subscale	.22	2.90	<.01	.61	.24	.16
BFNE-II	.32	4.41	<.01	.64	.35	.24
IUS-12	.38	5.54	<.01	.65	.43	.31

Table 3. Regression model, ANOVA summary table, Dependent Variable: SADS

	SS	*df*	*MS*	*F*	*p*	Correlations
Model 1: $R^2\Delta = .22$						
Regression	15513.2	2	7756.60	2.26	<.001	
Residual	52827.0	138	382.80			
Total	6834.2	140				
Model 2: $R^2\Delta = .34$						
Regression	24844.2	3	8053.75	24.98	<.001	
Residual	43496.1	137	322.47			
Total	6834.2	140				

	β	*t*	*p*	Zero-order	Partial	Part
Model 1 (Constant)		5.73	.00			
ASI-3 Social Subscale	.25	2.60	.01	.42	.22	.19
BFNE-II	.28	3.02	.00	.43	.25	.23
Model 2 (Constant)		.88	.38			
ASI-3 Social Subscale	.08	.86	.39	.42	.07	.06
BFNE-II	.17	1.90	.06	.43	.16	.13
IUS-12	.44	5.18	.00	.56	.40	.36

Table 4. Regression model, ANOVA summary table, Dependent Variable: SIPS

	SS	*df*	*MS*	*F*	*p*	Correlations
Model 1: $R^2\Delta = .38$						
Regression	5799.6	2	2899.78	42.97	<.001	
Residual	9311.7	138	67.48			
Total	15111.3	140				
Model 2: $R^2\Delta = .49$						
Regression	7499.5	3	2499.84	44.99	<.001	
Residual	7611.8	137	55.56			
Total	15111.3	140				

	β	*t*	*p*	Zero-order	Partial	Part
Model 1 (Constant)		.63	.53			
ASI-3 Social Subscale	.31	3.73	.00	.54	.30	.25
BFNE-II	.38	4.45	.00	.57	.35	.30
Model 2 (Constant)		-3.35	.00			
ASI-3 Social Subscale	.16	1.93	.06	.54	.16	.12
BFNE-II	.27	3.38	.00	.57	.28	.21
IUS-12	.41	5.53	.00	.63	.43	.34

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