Intolerance of Uncertainty and Anxiety Sensitivity: Fundamental Tenets for Fundamental Fears?

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Introduction

- Intolerance of uncertainty (IU) may have important theoretical associations with fears related to anxiety sensitivity (AS) – illness/injury sensitivity, fear of negative evaluation, and fear of pain – all of which are associated with anxiety disorders.

- IU and AS seem to share a basis in fearing unknown, potentially harmful consequences; however, their relationship with each other has yet to be established. IU regarding a specific stimulus, a physical sensation for example, may result in a variety of interpretations and responses, including the catastrophic appraisals that characterize AS.

- If AS and IU are highly associated and load on a single higher-order factor (i.e., representing different aspects of one construct), it might suggest that IU is a manifestation of fear related to the uncertain meaning behind anxiety-related responses. If they are unrelated and load onto independent higher-order factors, generalized IU and AS-specific uncertainty may require different therapeutic interventions. If they are moderately associated and load onto correlated higher-order factors, they may be mutually maintaining. This investigation evaluated these alternatives, and, secondarily, assessed the relationship of IU to other fundamental fears (Taylor, 1993).

Method

- Participants included 293 undergraduate students
  - 70 men, ages 18-33 (M = 21.2; SD = 3.5)
  - 223 women, ages 17-50 (M = 21.4; SD = 5.3)

- Demographics were supplemented with:
  - Intolerance of Uncertainty Scale, Short Form (IUS-12; Carleton, Norton, & Asmundson, 2007b)
  - Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992)
  - Illness/Injury Sensitivity Index-Revised (ISI-R; Carleton, Park, & Asmundson, 2006b)
  - Brief Fear of Negative Evaluation scale, version 2 (BFNE-II; Carleton, Collimore, & Asmundson, 2007)
  - Pain Anxiety Symptoms Scale-Short Form (PASS-20; McCracken & Dhingra, 2002)

- CFA fit indices (Hu & Bentler, 1999): χ^2/df ratio (χ^2/df; should be < 2.0); Comparative Fit Index (CFI; should be close to .95); Root Mean Square Error of Approximation (RMSEA; should be close to .06); Expected Cross Validation Index (ECVI; lower values, better fit).

- Pearson correlational analyses assessed the relationships between the full and subscale scores for the ASI, IUS-12, BFNE-II, ISI-R, and PASS-20. Canonical correlational analysis further assessed these inter-relationships with the ASI and IUS.

Results

- The one latent factor solution resulted in all fit indices being unacceptable
  - $\chi^2(5)$ = 141.26, p < .01, χ^2/df = 28.25, CFI = .83, SRMR = .09, RMSEA = .31 (95% CI .26 to .35), ECVI = .55 (95% CI .43 to .70).

- The two latent factor solution provided the better fit to the data based; see Figure 1
  - $\chi^2(4)$ = 12.79, p < .01, χ^2/df = 3.19, CFI = .99, SRMR = .02, RMSEA = .09 (95% CI .04 to .14), ECVI = .12 (95% CI .09 to .17).

- The correlation between the two factors was r = 0.68, as were the parceled loadings (see Figure 1). All inter-measure and inter-subscale Pearson correlations were statistically significant (p < .01; see Table 2).

- The first two statistically significant canonical correlations explained 42% of the variance in the ASI and IUS measures, and 32.8% of the variance in the PASS-20, ISI-R and BFNE-II measures. The analysis supported differential associations between the ASI, the IUS, and the other fundamental fears.

- CFA and correlational analyses results were similar in a second sample (n=110) of chronic pain patients.

Discussion

- The CFA results suggest that the ASI and IUS are not components of a single higher-order construct but, instead, are associated and best conceptualized as inter-related but independent factors.

- Each of the fundamental fears shares overlapping variance with IU comparable to AS, implying a potentially important theoretical and applied role for IU in all anxiety-related psychopathology. The canonical results suggest that fears of somatic sensations, pain, and illness are all associated, as are fears of socially observable anxiety reactions and fears of negative evaluation.

- IU may be a required component of catastrophic misappraisals while being an important construct related to fear and anxiety in its own right.

- High AS is characterized by uncertainty regarding the consequences of arousal-related sensations (e.g., heart palpitations may or may not signal a pending heart attack). Increased inability to tolerate the uncertainty surrounding such sensations is likely to result in heightened anxiety and catastrophic thinking. Conversely, tolerance of the uncertainty is likely to ameliorate anxiety and catastrophic thinking.

- It may be that IU and AS respectively represent the most fundamental components of fear.

Table 1: Descriptive Statistics

		α	Men (n = 70)		Women (n = 223)		Overall (N = 293)	
			M	SD	M	SD	M	SD
ASI Total		.90	12.30	8.96	17.29	11.04	16.10	10.78
	SOM	.88	5.00	5.29	8.14	6.62	7.39	6.46
	COG	.80	2.16	2.71	2.91	3.00	2.73	2.94
	SOC	.58	5.29	2.54	6.55	2.97	6.25	2.92
IUS-12 Total		.91	26.01	9.32	27.58	8.77	27.21	8.92
	PA	.89	16.87	6.20	17.52	5.52	17.36	5.68
	IA	.83	9.14	3.74	10.07	3.84	9.85	3.83
BFNE-II Total		.97	11.97	8.58	15.78	8.61	14.87	8.74
ISI-R Total		.91	8.69	6.87	11.83	7.86	11.08	7.75
	Illness	.87	5.47	4.14	7.39	4.73	6.93	4.66
	Injury	.89	3.21	3.35	4.44	3.82	4.15	3.74
PASS Total		.93	20.03	16.40	27.50	15.49	25.72	16.00
	Cognitive	.91	7.77	5.88	10.16	5.38	9.59	5.59
	Escape/Avoidance	.76	5.41	4.80	7.19	4.37	6.76	4.53
	Fear	.85	3.34	3.93	4.70	4.27	4.38	4.23
	Physiological	.84	3.50	4.46	5.46	4.88	4.99	4.85

Table 2: Pearson Correlations

		ASI				IUS		
		Total	SOM	COG	SOC	Total	PA	IA
ASI SOM		.95						
ASI COG		.86	.77					
ASI SOC		.76	.60	.53				
IUS Total		.58	.54	.53	.46			
	PA	.49	.47	.44	.40	.96		
	IA	.62	.56	.58	.49	.91	.75	
BFNE-II Total		.59	.49	.52	.57	.52	.45	.55
ISI-R Total		.55	.57	.47	.36	.41	.37	.40
	Illness	.55	.57	.45	.36	.40	.35	.40
	Injury	.46	.47	.41	.30	.35	.33	.34
PASS Total		.63	.63	.56	.44	.54	.49	.53
	Cognitive	.50	.51	.42	.38	.45	.41	.43
	Escape/Avoidance	.46	.43	.44	.34	.41	.36	.43
	Fear	.61	.63	.52	.39	.51	.45	.52
	Physiological	.53	.53	.48	.35	.43	.41	.40

SOM – ASI Fear of somatic sensations subscale; COG – ASI Fear of cognitive dyscontrol subscale; SOC – ASI Fear of socially observable anxiety reactions subscale; PA – IUS Prospective Anxiety subscale; IA – IUS Inhibitory Anxiety subscale

Figure 1: ASI-IUS Dual Latent Factor Model