

Anxiety Sensitivity and Intolerance of Uncertainty: Further Evidence of Construct Independence

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Introduction

- Recent interest into intolerance of uncertainty (IU; Carleton, Sharpe, & Asmundson, 2007) has suggested it may represent a fundamental tenet of at least one of the fundamental fears (Reiss, 1991; Taylor, 1993); specifically, anxiety sensitivity (AS).
- AS the tendency to catastrophically misinterpret the physiological sensations of anxiety (Taylor, 1999) likely requires some uncertainty regarding the possible consequences of anxiety sensations (e.g., heart palpitations may or may not signal a pending heart attack). People less able to tolerate the uncertainty surrounding such sensations may be more likely to catastrophize and endure exacerbated anxiety.
- The only prior study of the relationship between AS and IU used the original Anxiety Sensitivity Index (ASI; Peterson & Reiss, 1992), rather than the revision (ASI-3; Taylor et al., 2007), and the Intolerance of Uncertainty Short Form (IUS-12; Carleton et al., 2007). Moreover, the measures were presented separately, rather than with the items interspersed.
- The present investigation explored whether the ASI-3 and the IUS-12 do represent independent constructs irrespective of whether the items are presented normally (i.e., as cohesive measures) or presented in random order and interspersed with other items.

Method

- Participants included 307 undergraduates:
 - 69 men, ages 18-34 (*M* = 20.6; *SD* = 3.3)
 - 238 women, ages 18-45 (*M* = 2.2; *SD* = 3.3)
- Demographics were supplemented with:
 - Anxiety Sensitivity Index-3 (ASI-3; Taylor et al., 2007)
 - Intolerance of Uncertainty Scale Short Form (IUS-12; Carleton et al., 2007)
- Participants were randomly assigned such that approximately half (54%; n=141; 77% women) viewed the items presented normally (i.e., as cohesive measures), while the others (46%; *n*=166; 77% women) viewed the items presented in random order and interspersed with other items (i.e., questions on fear of pain, fear of negative evaluation, and fear of illness/injury).
- The random viewing group was older (*M*=20.7) than the standard group (*M*=19.8), *t*(305)= 2.35, *p*<.05, *r*²<.02.
- Total and subscale scores were compared using t-tests across each of the two groups. Exploratory Factor Analysis (EFA; Osborne, 2008) was used to assess the inter-item relationships and unconstrained factor structure of the ASI-3 and IUS-12 items from each group. Confirmatory Factor Analysis (CFA) was used to assess the fit indices using the established factor structures for each measure with the data from each group.

Results

- The standard group reported significantly (*p*<.05) higher scores than the random group only on the ASI Fear of Socially Observable Anxiety Reactions subscale, t(305)=3.32 p < .01, $M_{\rm D} = 1.74$, $r^2 = .04$, and the ASI total score, t(305) = 2.27, $p < .05, M_{\rm D} = 2.74, r^2 = .02.$
- The EFA results using principal factors analysis with promax rotation (Osborne, 2008) and the Kaiser rule (Eigenvalues > 1; Kaiser, 1961) and data from the standard group suggested a 30-item 7-factor solution accounting for 58.44% of the variance (Table 1). The results using data from the random group suggested a 30-item 7-factor solution accounting for 52.88% of the variance (Table 1).
- CFA fit indices were evaluated using established guidelines (Hu & Bentler, 1999) and item parcels: χ^2/df ratio (χ^2/df ; should be < 2.0); Comparative Fit Index (CFI; should be close to .95); the Standardised Root Mean Square Residual (SRMR values should be close to .08); Root Mean Square Error of Approximation (RMSEA; should be close to .06); Expected Cross Validation Index (ECVI; lower values, better fit).
 - Standard Presentation (Figure 1; Loadings in italics)
 - χ2(4)=6.87, p>.10, χ2/df=1.72, CFI=.99, SRMR=.03, RMSEA=.07 (90% CI=.01; .16), ECVI= .21 (90% CI=.19 .29)
 - Random Presentation (Figure 1; Loadings in bold)
 - χ2(4)=21.46, p<.01, χ2/df=5.36, CFI=.96, SRMR=.05, RMSEA=.16 (90% CI=.10; .23), ECVI= .26 (90% CI=.20 .38)

Table 1. Exploratory Factor Analysis Pattern Matrix Factor Loadings Standard Presentation Format

	ASI-3																	IU	5-12												Fear of Somatic Sensations	.69 .76	
	Fear of Somatic Sensations Subscale Fear of Cognitive Dyscontrol Subscale										Fear of Socially Observable Anxiety Reactions Subscale Prospective Anxiety Subscale Inhibitory Anxiety Subscale													Subscale									
	3	4	7	8	12	15	2	5	10	14	16	18	1	6	9	11	13	17	1	2	4	5	8	9	11	3	6	7	10	12			
Factor 1	.41	.21	.47	.82	.75	.71	26	04	.16	.08	.02	.14	.12	03	07	04	.00	04	.09	.08	.05	.03	02	.06	07	.00	.04	01	15	02	Fear of Cognitive Dyscontrol		\backslash
Factor 2	.20	.48	.00	16	02	01	.91	.83	.34	.64	.88	.51	07	.02	.09	.00	08	07	.08	.01	10	.02	13	08	.13	.16	12	.05	.09	.02	Subscale	ASI-3	h
Factor 3	.14	11	.18	.04	.06	20	12	.00	.16	03	.01	.15	.54	.76	.64	.50	.58	.50	07	.09	.13	17	.08	08	.16	06	04	12	.13	.04	Subscare		$\langle \rangle$
Factor 4	06	.15	16	.05	.13	.02	04	.14	08	.01	11	09	.02	.07	19	.16	.09	.03	.59	.70	.52	.55	.72	.69	.80	.34	.06	.20	.31	.57			
Factor 5	.00	.06	.33	07	19	.22	.01	13	07	09	.01	.17	17	.08	.19	13	13	.33	.03	09	.06	.18	.11	.09	26	.20	.94	.79	.45	.30	Fear of Socially Observable		
Factor 6	.55	.08	.04	.06	.13	20	.11	01	18	01	21	52	08	01	.11	27	.10	.07	.04	.07	.15	.04	10	.01	08	.17	12	.09	19	07	Anxiety Reactions Subscale	.68 .70	.80
Factor 7	09	10	06	.20	.03	.07	.15	05	.54	.38	.11	.10	.04	14	.22	.31	.26	11	.10	09	.17	.22	05	05	12	.28	.00	12	.11	.04	· · · · · · · · · · · · · · · · · · ·		.89
Random Pre	Indom Presentation Format																																
Factor 1	.68	01	.69	.77	.76	.68	06	.14	.10	01	.21	.02	.02	.08	.08	04	.09	04	.01	.00	.02	.04	27	.14	17	01	.09	04	06	.06	Prospective Anxiety	.81 .79	
Factor 2	.11	.46	.02	.08	03	11	.83	.07	.84	.76	.15	.51	11	04	.05	.18	02	01	.07	25	.02	.01	.08	12	.05	.03	.01	07	.07	.10	Subscale		
Factor 3	.02	08	.02	11	.05	07	23	.14	.12	.14	04	08	.68	.33	.61	.16	.13	.47	.13	.06	.04	05	.37	.02	01	18	.11	09	.20	.07	Subscure		\mathbf{V}
Factor 4	08	.12	.00	.04	.12	.04	.11	06	01	13	.02	04	08	04	.06	.06	04	.22	.80	.23	.51	.50	.14	.64	.27	.00	.01	.06	06	.43		103-12	ſ
Factor 5	03	.01	.00	01	02	.14	01	08	01	.10	06	03	.11	.12	11	.23	02	01	.03	.02	11	.36	05	02	11	.68	.77	.31	.51	.09			
Factor 6	.14	02	.10	.00	.02	09	.00	.49	15	.06	.61	.31	10	.13	.08	37	06	05	.01	.43	.04	05	.26	.02	.08	.17	02	.64	.37	.08	Inhibitory Anxiety Subscale	.89 .90	
Factor 7	.03	.31	04	.14	12	.05	.13	.16	08	09	17	02	.17	.30	.19	.27	.69	14	15	.19	.11	02	.09	.06	.36	.25	14	03	16	.11			





a,	S	К													
			Discussion												
		 There we presenta Socially O when pre measure order and when soo proximity Future re 	ere some significant differences between the two tion modalities; endorsement of the ASI Fear of Observable Anxiety Reactions subscale was higher esented in the standard manner (i.e., as cohesive s) relative to when they were presented in random d interspersed with other items. It may be that cially-related items are asked in close temporal y, the responses are inflated due to a priming effect esearch should further explore these differences.												
		 The EFAs and CFAs supported the independent, moderately correlated, association between the two measures irrespective of presentation modality. When constrained, items loaded and the precedent models fit the data well; however, when unconstrained, most items still loaded onto their precedent factors. 													
;		 Future st allow for Such stud the indep evaluation 	udies should employ larger samples (n>1000) that CFA evaluations without the use of item parcels. dies would provide a more robust investigation of bendence of individual items, rather than an on of the independence of subscales.												
;		 Overall, in to maintain the presence of the prese	t appears that the two constructs are generally able ain their statistical independence, irrespective of entation modality. These results support prior (Carleton et al., 2007) that suggests AS and IU are dent and IU may indeed represent a fundamental AS and other fundamental fears.												
		- 1	Figure 1: ASI-IUS Dual Latent Factor Model												
e			Fear of Somatic Sensations .69 .76 Subscale												
7 01		<u>10 12</u> 1502	Fear of Cognitive Dyscontrol												