

# Distress Tolerance and Generalized Anxiety Disorder Symptoms: A Relationship Beyond Theoretically Relevant Variables

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## Introduction

- ◆ Distress tolerance has been negatively associated with several anxiety symptoms, including worry.
- ◆ Distress tolerance is also related to intolerance of uncertainty and anxiety sensitivity, vulnerabilities for generalized anxiety disorder (GAD).
- ◆ Despite independent investigations of the interrelationships between these variables, several questions remain:
  - ◆ Is there a relationship between distress tolerance and GAD symptoms?
  - ◆ Is the additive contribution of distress tolerance to GAD symptoms significant above and beyond already established cognitive vulnerabilities for anxiety (i.e., anxiety sensitivity, intolerance of uncertainty)?
- ◆ The present study addressed these gaps by assessing the independent relationships between GAD symptoms, distress tolerance, anxiety sensitivity, and intolerance of uncertainty among a community sample self-reporting anxiety symptoms.
- ◆ Such delineations are necessary to extrapolate the integral components contributing to GAD symptom severity and, thereafter, to improve treatment processes.

## Methods

- ◆ North American participants ( $n = 152$ ; 78% women;  $M_{age} = 32$  years;  $SD = 14$ ) were recruited to complete measures online as part of a larger study investigating anxiety.
- ◆ Measures
  - ◆ **7-item Generalized Anxiety Disorder Scale (GAD-7)**. A 7-item scale assessing GAD symptoms. Total scores above 5, 10, and 14 indicate mild, moderate, and severe levels of anxiety respectively.
  - ◆ **Distress Tolerance Scale (DTS)**. A 15-item scale assessing individual abilities to experience and withstand negative emotional states.
  - ◆ **Intolerance of Uncertainty Scale–Short Form (IUS-12)**. A 12-item questionnaire assessing an individual's tendency to consider the possibility of a negative event occurring as unacceptable.
  - ◆ **Anxiety Sensitivity Index-3 (ASI-3)**. A 18-item scale assessing an individual's fear of arousal-related sensations (i.e., anxiety).
- ◆ Hierarchical linear regression analyses were performed with GAD-7 scores as the dependent variable, with the independent variables IUS-12 in model 1, ASI-3 in model 2, and DTS in model 3 (analyses were also run in the reversed order to comprehensively assess the possible relationships).
  - ◆ Order of independent variable placement in models was based on theoretical postulations that lower-order constructs should be inputted in higher model steps.

## Results

- ◆ Participants reported symptoms consistent with mild ( $n = 34$ , 22%), moderate ( $n = 35$ , 23%), and severe ( $n = 49$ , 32%) levels of generalized anxiety symptoms.
  - ◆ The IUS-12 ( $p < .001$ ), ASI-3 ( $p < .001$ ), and DTS ( $p < .001$ ) total scores were significantly different across all 3 groups. Effect sizes for each difference was large (IUS-12,  $\eta^2 = .31$ ; ASI-3,  $\eta^2 = .38$ ; DTS,  $\eta^2 = .44$ )
- ◆ Bootstrapping was used to maximize the robustness of the null hypothesis significance tests within the regressions.
- ◆ Model 1 accounted for 22% of the variance in GAD-7 total score. Step 1 demonstrated a small effect size ( $f^2 = .28$ ).
  - ◆ IUS-12 total score accounted for significant variance in GAD-7 total score ( $p = .001$ , part  $r = .47$ )
- ◆ Model 2 accounted for 32% of the variance in GAD-7 total score. Step 2 had a small to medium effect size ( $f^2 = .47$ ).
  - ◆ IUS-12 total score accounted for significant variance in GAD-7 total total ( $p = .002$ , part  $r = .24$ ).
  - ◆ ASI-3 total score also accounted for significant variance in GAD-7 total score ( $p < .001$ , part  $r = .32$ ).
- ◆ Model 3 accounted for 36% of the variance in GAD-7 total score. Step 3 had a medium effect size ( $f^2 = .55$ ).
  - ◆ IUS-12 total score accounted for significant variance in GAD-7 total score ( $p = .04$ , part  $r = .14$ ).
  - ◆ ASI-3 total score accounted for significant variance in GAD-7 total score ( $p = .001$ , part  $r = .25$ )
  - ◆ DTS total score accounted for significant variance in GAD-7 total score ( $p = .01$ , part  $r = -.21$ )

## Discussion

- ◆ In line with past research, intolerance of uncertainty was significantly and uniquely associated with GAD symptoms.
  - ◆ Individuals with a low tolerance for uncertainty may overestimate the probability of negative events occurring and engage in worry as a strategy to control future outcomes.
- ◆ Also congruent with past research, anxiety sensitivity was significantly and uniquely associated with GAD symptoms.
  - ◆ Individuals with high anxiety sensitivity may fear that uncontrollable anxiety sensations will interfere with their functioning or that such sensations are indicative of a health condition, thereby increasing worry.
- ◆ Distress tolerance was significantly and uniquely inversely associated with GAD symptoms.
  - ◆ The ineffectiveness of worry as a strategy to control future outcomes may precipitate emotional and cognitive arousal (e.g., irritability, difficulty concentrating) in individuals with low distress tolerance.
- ◆ The three variables related similarly to GAD symptoms within each level of GAD symptoms (i.e., mild, moderate, severe), suggesting that they parallel each other.
  - ◆ Combining targeted interventions for intolerance of uncertainty (e.g., uncertainty exposure), anxiety sensitivity (e.g., interoceptive exposure), and distress tolerance (e.g., elements of dialectical behavior therapy) may help improve the effectiveness of existing GAD treatment protocols.

Table 1: Descriptive statistics

Measures	$M(SD)$
GAD-7	10.54 (6.34)
IUS-12	36.69 (12.16)
ASI-3	30.18 (15.26)
DTS	45.50 (14.48)

Note: \* $p < .05$ ; \*\* $p < .01$ ; GAD-7 – 7-item Generalized Anxiety Disorder Scale; IUS-12 – Intolerance of Uncertainty Scale – Short Form; ASI-3 – Anxiety Sensitivity Index-3; DTS – Distress Tolerance Scale.

Table 2: Correlations

Measures	1	2	3	4
1. GAD-7	-			
2. IUS-12	.47**	-		
3. ASI-3	.52**	.51**	-	
4. DTS	-.50**	-.56**	-.49**	-

Note: \*\* $p < .01$ ; GAD-7 – 7-item Generalized Anxiety Disorder Scale; IUS-12 – Intolerance of Uncertainty Scale – Short Form; ASI-3 – Anxiety Sensitivity Index-3; DTS – Distress Tolerance Scale

Table 3: Hierarchical linear regression: GAD-7 score dependent variable

Model	Predictor	$\beta$	$R^2$	$r$	part $r$	$\Delta R^2$	$\Delta F$
1	IUS-12	.47**	.22	.47	.47	.22	42.99**
2	IUS-12	.28**	.32	.28	.24	.10	22.79**
	ASI-3	.37**		.36	.32		
3	IUS-12	.18*	.36	.17	.14	.04	9.72**
	ASI-3	.30**		.30	.25		
	DTS	-.26*		-.25	-.20		

Note: \* $p < .05$ ; \*\* $p < .01$ ; GAD-7 – 7-item Generalized Anxiety Disorder Scale; IUS-12 – Intolerance of Uncertainty Scale – Short Form; ASI-3 – Anxiety Sensitivity Index-3; DTS – Distress Tolerance Scale

Table 4: Hierarchical linear regression: GAD-7 score dependent variable–reversed

Model	Predictor	$\beta$	$R^2$	$r$	part $r$	$\Delta R^2$	$\Delta F$
1	DTS	-.50**	.25	-.50	-.50	.25	50.33**
2	DTS	-.32**	.34	-.33	-.29	.10	22.28**
	ASI-3	.36**		.36	.31		
3	DTS	-.26**	.36	-.25	-.20	.02	.04*
	ASI-3	.30**		.30	.25		
	IUS-12	.18*		.17	.14		

Note: \* $p < .05$ ; \*\* $p < .01$ ; GAD-7 – 7-item Generalized Anxiety Disorder Scale; DTS – Distress Tolerance Scale; ASI-3 – Anxiety Sensitivity Index-3; IUS-12 – Intolerance of Uncertainty Scale – Short Form

