



# A Longitudinal Examination of the Effects of Co-Occurring Cognitive Vulnerabilities to Anxiety and Depression on their Comorbid Symptoms

Evan M. Kleiman, M.A., Karen E. Schaefer, B.A., and John H. Riskind, Ph.D.  
Department of Psychology, George Mason University

### Introduction

Comorbid anxiety and depression symptoms are more severe, and are associated with greater treatment resistance, poorer treatment outcomes, and increased risk for suicide (Lydiard & Brawman-Mintzer, 1998). Given this, it is interesting to examine the cognitive factors that predict more comorbidity. To date, however, there has been a paucity of research in this area.

We postulated that having more than one cognitive risk factor places an additional burden on coping that increases risk of developing more severe depression and anxiety disorders. It is noteworthy in this regard that in a recent study, we found evidence for a synergistic effect investigating the effects of Looming Cognitive Style and Anxiety Sensitivity on the stress generation process (Riskind, Shahar ,& Black, 2010). However, no study to date has examined the impact of having both cognitive vulnerabilities on the severity of comorbid anxiety and depression symptoms. This study will specifically examine the combined effects of Alloy & Abramson’s (1999) negative inferential style, in which negative events are attributed to global and stable causes, and Riskind’s (2000) Looming Cognitive Style, in which threat stimuli are perceived as rapidly approaching.

We hypothesize that the co-occurrence of the Negative Inferential Style and Looming Cognitive Style at time 1 will predict higher levels of anxiety, depression, and co-morbid symptoms at time 2 after controlling for time 1 symptoms.

### Method

#### Participants and Procedure

The sample included 127 undergraduates (76% female) enrolled at a diverse suburban university with a mean age of 21.64 years (range 18-48). Participants completed the measures online as part of a larger study in exchange for extra course credit twice over a one-month period.

#### Measures

Negative Inferential Style: Negative inferential style was assessed using the Cognitive Style Questionnaire (CSQ; Alloy et al., 2000), which measures individual’s styles for inferring causes, consequences, and self characteristics for each of 12 hypothetical events, divided evenly between achievement and interpersonal events.

Looming Cognitive Style: Looming Cognitive Style was assessed using the Looming Maladaptive Style Questionnaire (LMSQ; Riskind et al., 2000), a validated measure of individuals’ tendency to generate mental scenarios of potentially threatening situations that are rapidly rising in risk or intensifying in danger.

Severity of Depression and Anxiety: Depression and anxiety was measured using the Depression and Anxiety Scales (DASS; Lovibond & Lovibond, 1995), a set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress. A comorbidity variable was created by summing the anxiety and depression scales.

### Results

Means, standard deviations, and intercorrelations of all study variables are reported in table 1.

Table 1. Means, standard deviations, and intercorrelations of all study variables

	CSQ	LMSQ	T1 DASS Anxiety	T1 DASS Depression	T1 DASS Comorbid	T2 DASS Anxiety	T2 DASS Depression	T2 DASS Comorbid
LMSQ	.295**	-						
Time 1 DASS Anxiety	.025	-.080	-					
Time 1 DASS Depression	-.058	.094	.004	-				
Time 1 Comorbid Symptoms	-.028	.020	.651***	.762***	-			
Time 2 DASS Anxiety	.236**	.134	-.057	-.089	-.104	-		
Time 2 DASS Depression	.181*	.033	-.091	-.097	-.133	.710***	-	
Time 2 Comorbid Symptoms	.224**	.088	-.081	-.101	-.129	.919***	.930***	-
Mean	3.88	56.47	11.54	12.55	24.09	10.63	11.50	22.13
SD	.70	10.76	2.64	3.09	4.07	9.10	9.76	17.44

Note: CSQ = Cognitive Style Questionnaire; LMSQ= Looming Maladaptive Style Questionnaire; DASS Anxiety and Depression Symptoms = Depression and Anxiety subscales from the Depression, Anxiety, and Stress Scales; DASS Co-Occurring Symptoms = Sum of DASS anxiety and depression. \* = p < .05; \*\* = p < .01

Hierarchical linear regression analyses were conducted to determine the ability of time 1 co-occurring cognitive vulnerabilities to predict time 2 anxiety, depression, and comorbid symptoms (sum of anxiety and depression), controlling for time 1 symptoms. All variables in the interaction term were standardized according to the recommendations of Aiken and West (1991). Table 2 shows the results of these analyses, table 3 shows the change statistics, and figures 1, 2, and 3 show the plot that results from probing these interactions.

Table 2. Results of linear regression analyses on depression, anxiety, and comorbid symptoms

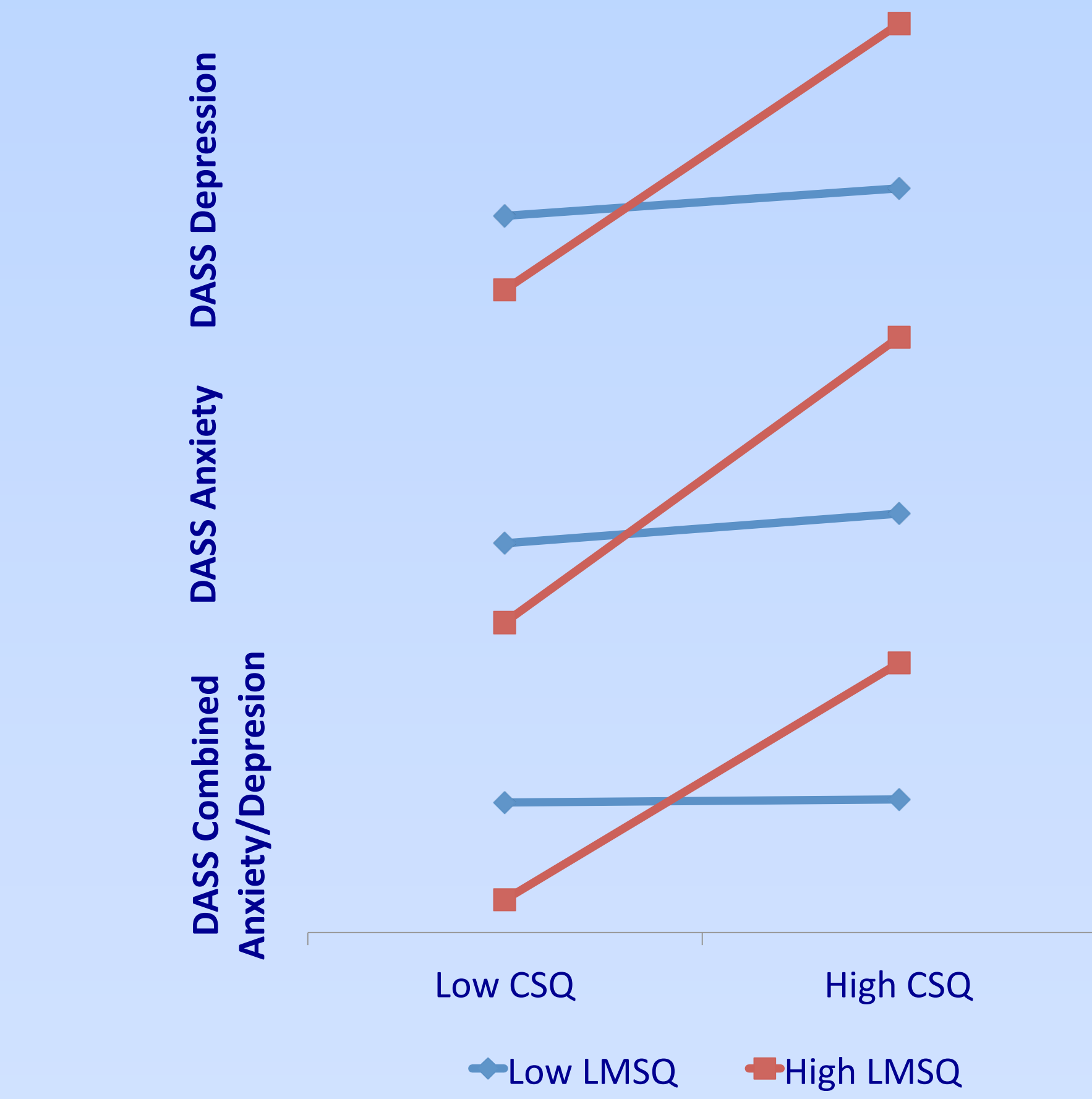
	DASS Depression		DASS Anxiety		DASS Comorbid	
	β	t	β	t	β	t
Block 1						
T1 Psychopathology	-.80	-1.08	-.06	-.73	-.12	-1.60
Block 2						
T1 CSQ	.23	2.84**	.26	3.18**	.26	3.28**
T1 LMSQ	.00	.01	.08	.95	.04	.52
Block 3						
CSQxLMSQ	.26	3.29**	.20	2.6**	.25	3.23**

Note: CSQ = Cognitive Style Questionnaire; LMSQ= Looming Maladaptive Style Questionnaire; DASS Anxiety, Depression, and Comorbid = Depression and Anxiety subscales from the Depression, Anxiety, and Stress Scales. \* = p < .05; \*\* = p < .01

Table 3. Change statistics for all steps in depression, anxiety, and comorbidity models

	DASS Depression		DASS Anxiety		DASS Comorbid	
	R <sup>2</sup>	R <sup>2</sup> Δ	R <sup>2</sup>	R <sup>2</sup> Δ	R <sup>2</sup>	R <sup>2</sup> Δ
Block 1	.01	-	.00	-	.02	-
Block 2	.04	.03	.06	.06**	.06**	.04
Block 3	.10	.07***	.10	.04***	.13***	.09

Figures 1-3. Graphs of interaction plots for all three outcome variables



### Discussion

As expected, we found support that the two cognitive vulnerabilities augment each other’s effects on symptom changes over the next month in time. Results of regression models indicated that the combination of Looming Cognitive Style and Negative Inferential Style together had a far stronger effect on symptoms than would just one factor or their additive combination alone. Specifically, they indicated that the interaction between Looming Cognitive Style and Negative Inferential Style contributed to prediction of time 2 anxiety, depression, and combined depression and symptoms when controlling for respective time 1 levels of symptoms and the additive effects of the vulnerability factors. The most notable differences appear when examining the predictive ability of CSQ at high levels of LMSQ where the largest differences between groups appear.

These findings suggest that the joint combination of the two cognitive vulnerabilities seemed to play a marked role in predicting the severity of future symptoms and augment each other to predict higher levels of symptoms.

#### Limitations and Future Directions

The DASS, the primary outcome variable in this study, only measured overall symptom levels relating to psychopathology and did not directly assess diagnosis. Future studies should use a structured clinical diagnostic measure such as the SCID or SADS. Finally, the CSQ and LMSQ are vulnerability X stress models and it is possible that assessing the influence of negative events and their interaction with the vulnerabilities would yield more evidence for synergy.

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