



## Negative Generalization and Symptoms of Anxiety Disorders

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### Abstract

The tendency to generalize from a single failure to one's entire self-worth is an important correlate and predictor of depression. Despite conceptual overlap between cognitive biases in anxiety and depression, little research has examined whether negative generalization relates to anxiety symptoms. We examined associations of negative generalization with symptoms of several anxiety disorders, above and beyond its association with lifetime symptoms of depression, among 248 undergraduates. After controlling for lifetime symptoms of major depression, negative generalization was significantly correlated with symptoms of each anxiety disorder tested, most notably generalized anxiety and social phobia.

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Keywords: symptoms; depression; anxiety; negative generalization

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Received 11-Sep-2010; received in revised form 25-May-2011; accepted 09-Aug-2011

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## Introduction

Since the development of Beck's (1976) cognitive model of depression, researchers have studied a rich array of cognitive risk factors for depression, including negative generalization, or interpreting a single failure as reflecting upon one's entire self-worth. This variable has emerged in a series of studies as a correlate and predictor of depression. Initial studies found that negative generalization correlated more strongly with depressive symptoms than did the holding of high standards, the tendency to be self-critical, or the tendency toward self-blame for adverse outcomes (Carver & Ganellen, 1983; Carver, La Voie, Kuhl, & Ganellen, 1988). Negative generalization has also been found to be elevated among persons with a diagnosis of lifetime major depression, (Eisner, Johnson, & Carver, 2008), even controlling for current depressive symptoms. Negative generalization has also predicted prospective increases in depressive symptoms after negative life events (Carver, 1998).

Substantial evidence has also accrued for the role of cognitive variables in anxiety. Anxiety has been found to be correlated with many facets of negative cognition, including attentional biases (Dalglish & Watts, 1990; Williams, Mathews, & MacLeod, 1996), negative interpretations of ambiguous stimuli (MacLeod & Cohen, 1993; Mogg, Mathews, & Eysenck, 1992), and quicker detection of threat-related facial expressions than happy or neutral expressions (Fox, Mathews, Calder, & Yiend, 2007). Negative cognitive styles have been found to predict the severity of anxiety (Schulz, Alpers, & Hofmann, 2008), and experimentally manipulating negative attentional biases has been found to produce changes in anxious symptoms (MacLeod, Rutherford, Campbell, Ebsworthy, & Holker, 2002). Thus, cognitive biases have been found to be an important aspect of risk for anxiety symptoms.

Somewhat surprisingly, little attention has been given to the possibility that negative generalization is linked to anxiety. We are aware of one previous study on this question. In a study of persons diagnosed with panic disorder (Ganellen, 1988), negative generalization was unrelated to anxiety, as measured by the Hamilton Rating Scale for Anxiety (HRSA; Hamilton, 1960), when controlling for scores on the Hamilton Rating Scale for Depression (HRSD; Hamilton, 1960). There are two potential reasons, however, why generalization scores did not relate uniquely to anxiety in that study. First, the measure of generalization used was its initial version (Carver & Ganellen, 1983); its items referred to generalization but also had connotations of maintaining high standards or being self-critical (other scales of the overall measure). For this reason, the measure was later revised so as to disambiguate these items (Carver et al., 1988). Second, the anxious participants in that study were all diagnosed with panic disorder. Increasing evidence now suggests that depression shares more etiological overlap with generalized anxiety disorder and social phobia (Kendler, Prescott, Myers, & Neale, 2003).

The study reported here re-examined the relation between negative generalization and anxiety disorders, using the revised measure of generalization (Carver et al., 1988). We also collected a measure that screens for diverse anxiety disorders, including social phobia, panic disorder, and GAD, and a measure that assesses lifetime symptoms of depression. We hypothesized that negative generalization would be related to symptoms of anxiety disorders above and beyond its relation to lifetime symptoms of depression.

## Method

### Participants

Participants were 248 undergraduates (54% female) at the University of Miami. While age and ethnicity were not gathered during this session, the ethnic distribution of the participants presumably did not diverge greatly from the ethnic distribution of the student body at the University of Miami (which during this semester was 56% non-Hispanic White, 27% Hispanic, 10% non-Hispanic Black, 7% Asian).

### Procedure

Participants completed measures during one of several undergraduate introductory psychology courses in order to complete a course research participation requirement. After providing informed consent, participants completed paper and pencil measures in a large group setting (30-100 students). All sessions were supervised by research assistants.

## Measures

### *Attitudes Toward Self-Revised, Generalization subscale (ATS-R).*

The ATS-R Generalization subscale (Carver et al., 1988) is a four-item self report measure that assesses the tendency to generalize from a single failure to the broader sense of self-worth (“If I notice one fault of mine, it makes me think about my other faults”; “When even one thing goes wrong I begin to wonder if I can do well at anything at all”; “I hardly ever let unhappiness over one bad time influence my feelings about other parts of my life” [reversed]; “A single failure can change me from feeling OK to seeing only the bad in myself”). Participants rated each item on a scale from 1 (“I agree a lot”) to 5 (“I disagree a lot”). Responses were averaged, to keep the total scores on the same metric as the response options. In previous research, this Generalization scale has been shown to relate to depression, as measured by the BDI (Carver et al., 1988), and to interact with adverse events to predict depressive symptoms over time (Carver, 1998). Carver and colleagues (1983) reported an average test-retest correlation for generalization of .62 from two samples over 6-week intervals. The alpha reliability coefficient for the Generalization subscale in this sample was .74.

### *The Inventory to Diagnose Depression-Lifetime (IDD-L).*

The IDD-L (Zimmerman & Coryell, 1987) was used to assess lifetime depressive symptoms. This measure includes 22 items to capture symptoms necessary for a DSM-IV diagnosis of major depressive disorder. Each item on the IDD-L asks the participant to select one of five descriptions that best characterizes a symptom they have experienced. For each of the 22 items, participants are then asked whether the symptom lasted for at least 2 weeks. The IDD-L has been shown to have good internal consistency (Cronbach’s alpha = .92), split-half reliability (Spearman-Brown coefficient = .90), and it does not present a significantly higher lifetime prevalence of major depressive disorder than the Diagnostic Interview Schedule (14.8% vs. 11.7%; Zimmerman & Coryell, 1987). In the initial validation

study, the sensitivity of the IDD-L was 74% and its specificity was 93%. In addition, the original version of the measure was shown to be highly correlated ( $r = .80$ ) with the HRSD (Zimmerman, Coryell, Corenthal, & Wilson, 1986).

### **Psychiatric Diagnostic Screening Questionnaire (PDSQ).**

The PDSQ (Zimmerman & Mattia, 1999) is a 126-item self-report measure designed to screen for 13 of the most common DSM-IV axis I disorders. The subscales relevant to this study were symptoms of panic disorder (8 items), social phobia (15 items), and generalized anxiety disorder (GAD, 10 items). Participants were asked to provide a yes or no response to items reflecting the DSM-IV symptom criteria for each disorder (e.g., “During the past 2 weeks...did you get very scared because your heart was beating fast?” [panic disorder]; “During the past 6 months...did you worry a lot about embarrassing yourself in front of others?” [social phobia]; “During the past 6 months...did you worry a lot that bad things might happen to you or someone close to you?” [GAD]). In previous studies, the subscales on the PDSQ exhibited moderate to high levels of internal consistency (mean Cronbach’s alpha coefficient = .82; Zimmerman & Mattia, 1999). In the present study, alphas ranged from .69 to .84. For the four subscales used in the present study, previous research (Zimmerman & Chelminski, 2006) has found that average sensitivity with respect to the Structured Clinical Interview for DSM-IV Axis I Disorders (SCID; First, Spitzer, Gibbon, & Williams, 1995) was 84.6%, average specificity was 63.6%, average positive predictive value was 35.6%, and average negative predictive value was 95%.

## **Results**

We began by computing descriptive statistics for the various measures. The distribution of the IDD-L was consistent with those in previous studies (Sato et al., 1996; Zimmerman & Coryell, 1987), ranging from 0 to 9 ( $M = 2.32$ ,  $SD = 2.87$ ). Twenty-three percent of the current sample met IDD-L criteria for a lifetime diagnosis of depression. Generalization scores ranged from 1 to 5 ( $M = 2.85$ ,  $SD = 0.96$ ). The anxiety screening measures had the following descriptive statistics: panic symptoms (range = 0 - 40;  $M = 1.13$ ;  $SD = 2.98$ ), social phobia symptoms (range = 0 - 22;  $M = 2.88$ ;  $SD = 2.82$ ), and generalized anxiety symptoms (range = 0 - 12;  $M = 2.30$ ;  $SD = 2.59$ ). The distributions of the anxiety disorder symptoms scales were positively skewed. We conducted square root transformations of these variables to help those distributions approximate normalcy. Correlations with the transformed variables were equivalent to those with the untransformed variables. Thus, we present analyses of the untransformed variables.

We also examined correlations among the different symptom measures. All anxiety disorder scales were significantly positively correlated with IDD-L depressive symptom history ( $r$ s ranged from .16 to .37). In addition, all anxiety disorder scales were significantly positively correlated with each other ( $r$ s ranged from .22 to .49).

We then computed correlations of Generalization with the depressive symptom and the anxiety disorder screening measures. As can be seen in Table 1, Generalization scores were significantly correlated with all anxiety disorder screening measures, and with the IDD-L. Generalization scores remained significantly correlated with all of the anxiety disorder screening measures after controlling for IDD-L<sup>1</sup>.

To determine whether the correlation between some of the anxiety disorders and ATS - R Generalization subscale scores could be explained by comorbidity with another anxiety disorder, we computed additional partial correlations between these scales, controlling for depression history and each of the

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<sup>1</sup> We also examined the relations among symptoms of anxiety disorders and Generalization scores in those with no history of Major Depression on the IDD-L. Generalization scores were still robustly correlated with symptoms of anxiety disorders in this subgroup.

other anxiety disorders. As can be seen in the far right column of Table 1, Generalization scores remained significantly correlated with symptoms of social phobia and generalized anxiety, but not with symptoms of panic.

*Table 1: Correlations of ATS - R Generalization Scores with Anxiety Disorder Screening Measures and IDD-L Depressive Symptoms Scores*

	Generalization	Generalization (controlling for IDD-L)	Generalization (controlling for IDD-L and all other anxiety disorders)
Generalized Anxiety	.46**	.40**	.16*
Panic	.31**	.27**	.13
Social Phobia	.48**	.46**	.32**
IDD-L Depressive Symptoms	.30**	-	-

\* $p < .05$ , \*\* $p < .001$

ATS - R = Attitudes Towards Self - Revised (Carver et al., 1988); IDD-L = Inventory to Diagnose Depression - Lifetime version (Zimmerman & Coryell, 1987).

## Discussion

This study examined the relationship between negative generalization and anxiety symptoms. Negative generalization was robustly correlated with symptoms of generalized anxiety and social phobia, and moderately correlated with symptoms of panic, even after controlling for lifetime depressive symptoms. Somewhat consistent with findings of Ganellen (1988), however, negative generalization was not correlated with symptoms of panic after controlling for symptoms of the other anxiety disorders. After controlling for depressive symptoms (IDD-L) and the other anxiety disorder symptoms, however, negative generalization remained significantly related to symptoms of social phobia and generalized anxiety.

Why was negative generalization uniquely related only to symptoms of generalized anxiety and social phobia? Kendler and colleagues (2003) documented two factor-analytically derived dimensions of mental disorders: externalizing (impulse-control and substance disorders) and internalizing (depression and anxiety disorders). Watson (2005) further divided the internalizing dimension into two groups: fear disorders (panic and phobias) and distress disorders (depression and GAD). Our finding that negative generalization was uniquely related to generalized anxiety symptoms—coupled with findings linking depression with negative generalization—fits well with the distress disorder concept. It has been suggested that social phobia is more tied to the distress disorders than are other phobias (Kessler, Ruscio, Shear, & Wittchen, 2009), likely due to shared cognitive biases, such as low positive affectivity (Brown, Chorpita, & Barlow, 1998). Our findings are consistent with this view. Indeed, though, our findings extend previous reports of etiological overlap in suggesting parallel cognitive correlates of these disorders.

This study has several limitations. Participants were undergraduates who were not diagnosed with clinically significant anxiety disorders. In addition their scores on the anxiety disorder scales of the PDSQ were generally low. Thus, extrapolating these findings to individuals with diagnosed anxiety disorders should be done with caution. Nonetheless, findings may still have important implications for mild symptoms of anxiety disorders in non-clinical populations. For example, negative generalization may contribute to decreased productivity, relational difficulties, or other problems in individuals with mild symptoms of anxiety. Further, the cross-sectional nature of the study precludes conclusions about whether negative generalization is a contributing factor or a product of anxiety. That is, it is unknown

whether negative generalization is a cognitive style consistent with someone experiencing current symptoms of anxiety, or if these cognitive biases place one at risk of developing an anxiety disorder. Finally, we were unable to examine associations with other conceptually related variables, such as neuroticism or negative affectivity (Clark & Watson, 1991; Muris, Roelofs, Rassin, Franken, & Mayer, 2005). There is reason to suspect that these temperamental/characterological factors may explain both negative generalization and anxiety symptoms. We also did not include a separate measure of current depressive symptoms, and as such, some biases due to mood state may be operative. Future research would benefit from addressing the above limitations, especially by examining the role of negative generalization in persons diagnosed with anxiety disorders.

Despite these limitations, the data suggest that negative generalization, or interpreting a single failure as reflecting upon one's entire self-worth, is a facet of the cognitive profile associated with anxiety disorders. If prospective studies identify negative generalization as a risk factor for developing anxiety disorders, then screening for this cognitive bias may help identify people who could benefit from prevention efforts. In addition, given that negative generalization may be a maintenance factor uniquely related to social phobia and generalized anxiety disorder, techniques used in cognitive therapy for depression (e.g., thought challenging) may be beneficial for people with these disorders.

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