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Distress Tolerance and Pathological Worry: Tests of Incremental and Prospective Relationships

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Pathological worry and generalized anxiety disorder (GAD) have been linked with low distress tolerance (DT), although questions remain including whether this association exists independent of depression and comorbidity, the directionality of the relationship between worry and DT, and DT's nonredundancy with other worry-relevant variables (i.e., emotional reactivity, stressful life events). Further, it is unclear whether DT is merely a correlate of excessive worry or acts as a risk factor for its development. Two independent studies were completed to evaluate these questions. In Study 1, DT was examined in patients with GAD and healthy controls. In Study 2, a nonclinical sample completed baseline measures of DT, negative affect, and worry, as well as daily assessments of these constructs and stressors for 1 month. In Study 1, lower DT was associated with GAD diagnosis and greater worry symptoms independent of extent of comorbidity and depressive symptoms. In Study 2, lower baseline DT predicted unique variance in daily worry and increases in worry over time, whereas baseline worry did not predict daily DT or decreases in DT 1 month later. Findings suggest that low DT plays a role in excessive worry independent of relevant covariates (i.e., comorbidity, emotional reactivity, stressful life events) and that this relationship is unidirectional. Further, preliminary evidence indicates that low DT may be an overall risk factor for the development of worry, particularly during periods of romantic stress, although further research and replication is required.

Keywords: emotion regulation; generalized anxiety disorder; risk factor; longitudinal

Generalized anxiety disorder (GAD), defined by excessive and uncontrollable worry, is associated with significant impairment (Wittchen, Zhao, Kessler, & Eaton, 1994) and decreased productivity (Greenberg et al., 1999). Some prominent conceptualizations of GAD have identified emotional avoidance as one of the central features of the disorder (Borkovec, Alcaine, & Behar, 2004; Mennin, Heimberg, Turk, & Fresco, 2005). Theoretical models of GAD that emphasize the role of emotional factors have spurred the development of treatments aimed at reducing emotional avoidance (Fresco, Mennin, Heimberg, & Ritter, 2013). Thus, given its clinical relevance, it is important that emotional avoidance be understood within the context of GAD and excessive worry.

Theoretical models of GAD emphasizing emotional avoidance maintain that worry serves as cognitive avoidance that reduces the distress associated with aversive imagery/somatic activity (Borkovec et al., 2004). Further refinements of the theory suggest that the reduced concreteness of worry serves to distance the individual from avoided imagery and internal stimuli (Stöber & Borkovec, 2002). Because of the affect-amplifying properties of mental imagery (Holmes & Mathews,

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2010), it may be that emotional experiences themselves are feared by individuals with GAD. Indeed, recent theories on emotional avoidance in GAD propose that patients may be particularly fearful of unexpected negative emotional shifts (Newman & Llera, 2011). More broadly, Mennin and colleagues (2005) have proposed an emotion dysregulation model of GAD that characterizes GAD patients as generally demonstrating negative reactions to their emotions, poor understanding of their emotions, and difficulty self-soothing after experiencing negative emotions. Overall, existing theories converge on the conceptualization of worry as a form of cognitive avoidance of aversive imagery/somatic activity, with recent theoretical advances suggesting that worry may serve an even broader function by facilitating avoidance of negative emotional experiences in general. Thus, clarification of variables that predispose individuals to emotional avoidance may be informative for etiological models of GAD.

Distress tolerance (DT) is an individual difference variable that has been defined as the ability to tolerate aversive emotional states (Leyro, Zvolensky, & Bernstein, 2010). Self-report measures of DT assess *perceived* capacity to withstand distress (Simons & Gaher, 2005), whereas behavioral measures assess the *actual* capacity to tolerate distress, generally on a distressing task that requires persistence towards a goal despite negative affect (NA) (Strong et al., 2003). Psychometric analyses have revealed behavioral and self-report measures of DT to be moderately stable over time, suggesting that measures of DT demonstrate similar psychometric reliability as other traitlike constructs (Cummings et al., 2013; Kiselica, Webber, & Bornovalova, 2014). Regarding validity, self-reported DT has been associated with perceived tolerance of in-vivo media-induced negative emotions above and beyond emotional reactivity (Cougle, Bernstein, Zvolensky, Vujanovic, & Macatee, 2013). Further evidence of DT's construct validity comes from extensive research on substance use disorders demonstrating that both types of measures are predictive of variables thought to be driven by emotional avoidance/negative reinforcement (i.e., relapse, coping-motivated use; Berking et al., 2011; Simons & Gaher, 2005).

Emerging work on DT and anxiety disorders has revealed inverse relationships between DT and GAD/excessive worry symptoms (Allan, Macatee, Norr, & Schmidt, 2014; Norr et al., 2013), as well as social anxiety, panic, and obsessive-compulsive symptoms (Keough, Riccardi, Timpano, Mitchell, & Schmidt, 2010; Norr et al.). In addition, DT has also been inversely associated with a composite anxiety disorder symptom score in a community sample of adolescents (Cummings et al., 2013). Interestingly, across multiple nonclinical samples, DT appears to be most robustly related to excessive worry relative to other anxiety symptoms (Keough et al., 2010; Norr et al.). Further, DT has been found to be uniquely associated with obsessions, but not other OCD symptoms, in nonclinical and clinical samples (Macatee, Capron, Schmidt, & Cougle, 2013). These data suggest that DT may be related to anxiety disorders via its relationship to perseverative thought. However, little research exists examining the relationship between DT and GAD in a clinical sample while controlling for number of comorbid disorders, which is an important consideration given the high co-occurrence of GAD, depression, and other anxiety disorders (Wittchen et al., 1994) as well as data suggesting that perseverative thought is positively associated with extent of comorbidity (McEvoy, Watson, Watkins, & Nathan, 2013). Such studies would help clarify whether the observed relationship between DT and GAD/worry is specific or a function of extent of comorbidity, a clarification that is also important to the conceptualization of DT as distinct from negative emotionality (Leyro et al., 2010).

DT has also been linked to major depressive disorder (Allan et al., 2014; Ellis, Vanderlind, & Beevers, 2013) and depressive symptoms (Allan et al.; Magidson et al., 2013). However, in contrast to anxiety, DT was not significantly associated with depressive symptoms in adolescents (Cummings et al., 2013). Although DT was found to be inversely related to depressive symptoms in a sample of substance users, the relationship was fully mediated by rumination (Magidson et al.). In a large outpatient sample, Allan and colleagues found that, after controlling for co-occurring GAD diagnoses/worry symptoms, DT was no longer associated with depressive symptoms, although it did interact with a related affect tolerance variable to predict MDD diagnosis. They also found that, after controlling for co-occurring MDD diagnoses/depressive symptoms, DT remained significantly associated with worry symptoms. Further studies in clinical samples are needed that assess the unique contributions of worry/depressive symptoms and comorbidity in the prediction of DT. Such research would help determine the specificity of the DT and GAD relationship and clarify the equivocal findings on DT and depression; this would provide further theoretical support for DT's construct validity and the conceptualization of worry, more so than other internalizing symptoms, as an emotionally avoidant process.

An additional limitation of the literature on DT and GAD concerns their predominantly cross-sectional