

12-10-2014

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Original Citation

Fergus, T. A., Valentiner, D. P., Wu, K. D., & McGrath, P. B. (2015). Examining the symptom-level specificity of negative problem orientation in a clinical sample. *Cognitive Behaviour Therapy*, 44, 153-161.

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Examining the Symptom-Level Specificity of Negative Problem Orientation in a Clinical Sample

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Abstract

Given the equivocal state of the literature as to the symptom-level specificity of the cognitive variable labeled negative problem orientation (NPO), we targeted NPO-symptom relations. A clinical sample ($N = 132$) of adults diagnosed with an anxiety disorder, mood disorder, or obsessive-compulsive disorder completed self-reports of NPO and symptom types (worry, depression, obsessive-compulsive, panic, and social anxiety). Symptom-level specificity was examined using a combination of zero-order and regression analyses that controlled for the other assessed symptoms. Results were that NPO shared small to moderate correlations with the symptoms. Regression results indicated that NPO only shared unique associations with worry, depression, and social anxiety. In the analyses, NPO clustered particularly strongly with worry. The present results provide support for conceptualizing NPO as a cognitive variable common to emotional disorders, but not as related equivalently to all disorders within this category.

Keywords: depression; generalized anxiety disorder (GAD); negative problem orientation; social anxiety; worry

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Brown, Chorpita, and Barlow (1998) opined that generalized anxiety disorder (GAD) represents *the* basic emotional disorder “because it is composed of features (chronic worry, negative affect) that are present to varying degrees in all emotional disorders” (p. 188). One implication of the commonality of worry to emotional disorders is that variables once considered specific to worry may span across emotional disorders. Studies examining the variable labeled intolerance of uncertainty (IU) provide support for the potential commonality of putatively worry-specific variables to emotional disorders. IU is the central variable within Dugas, Gagnon, Ladouceur, and Freeston’s (1998) cognitive model of GAD and is considered by some researchers to be worry-specific (Dugas, Gosselin, & Ladouceur, 2001). Subsequent studies have found that IU actually has transdiagnostic importance (Carleton, 2012; Gentes & Ruscio, 2011). Such findings do not challenge the importance of Dugas et al.’s model *per se*, as the model provides the basis for an effective cognitive-behavioral treatment for GAD (Dugas & Robichaud, 2007). Rather, that one of the variables within Dugas et al.’s model evidences transdiagnostic importance suggests even broader benefits of the model may be realized (Carleton, 2012).

The potential transdiagnostic importance of IU raises an interesting possibility that other variables within Dugas et al.’s (1998) model also might be common to emotional disorders. Negative problem orientation (NPO) is a core variable within Dugas et al.’s model and also within social problem-solving theory (D’Zurilla, Nezu, & Maydeu-Olivares, 2004). Social problem-solving theory defines the problem-solving process via two interrelated processes: problem orientation and problem-solving skills. Dugas and Robichaud (2007) stated that “although individuals with GAD generally know how to solve their problems, they have difficulty successfully doing so because they have a negative cognitive set when faced with a

problem” (p. 38). For this reason, Dugas et al.’s model focuses exclusively on problem *orientation*. Robichaud and Dugas (2005a) defined NPO as a set of beliefs about perceiving problems as a threat to well-being, experiencing doubt over problem-solving ability, and the tendency to be pessimistic about outcomes. Despite delineating specific beliefs that mark NPO, Robichaud and Dugas found that NPO is a unidimensional construct. Other published definitions emphasize the unidimensionality of NPO more so than Robichaud and Dugas’s definition. For example, Ciarrochi, Leeson, and Heaven (2009) defined NPO as beliefs related to the inability to effectively cope with problems. Problems can be defined as “any life situation or task (present or anticipated) that demands a response for adaptive functioning but no effective response is immediately apparent or available to the person” (D’Zurilla et al., 2004, p. 12).

Research supports NPO as a potential cause of negative emotions. For example, Ciarrochi and Scott (2006) found that NPO predicted anxiety and depression symptoms at a one-year follow-up while controlling for baseline symptoms. In a subsequent study, Ciarrochi et al. (2009) found that NPO predicted fear and sadness at two yearly follow-up assessments while controlling for the baseline relation between NPO and either fear or sadness. Ciarrochi et al. further found that fear and sadness did not consistently predict NPO at the follow-up assessments. As such, the available literature indicates that NPO may confer vulnerability for emotional disorders.

What remains less clear is whether NPO is specific to certain symptom types versus spans across symptoms of emotional disorders. Robichaud and Dugas (2005b) considered NPO to be worry-specific. Whereas NPO correlated statistically equivalently with worry ($r = .55$) and depression ($r = .63$) in a nonclinical sample, Robichaud and Dugas found that NPO accounted for a larger amount of unique variance in worry scores ($\Delta R^2 = .06$) relative to depression scores ($\Delta R^2 = .02$) after accounting for relevant covariates (e.g., neuroticism). Alternatively, Haugh

(2006) considered NPO to be specific to depression. Haugh found that NPO correlated strongly with depression ($r = .62$) and moderately with non-specific anxiety ($r = .49$) in a nonclinical sample. Haugh did not report analyses statistically comparing the magnitude of the correlations. After controlling for the overlap among depression and anxiety, Haugh found that NPO correlated with depression and no longer correlated with anxiety.

At least two other studies have extended our understanding of NPO-symptom relations. Dugas, Marchand, and Ladouceur (2005) found that NPO significantly correlated with worry ($r = -.49$), but not panic ($r = -.24$), in a mixed sample of individuals diagnosed with either GAD or panic disorder using a negatively-keyed NPO scale. Dugas et al.'s findings were consistent with NPO being worry-specific. Fergus and Wu (2011) examined relations between NPO and a wider range of symptoms than prior studies: In two nonclinical samples, NPO shared significant and *equivalent* correlations with worry (*rs* of .56 and .57), depression (*rs* of .54 and .58), obsessive-compulsive symptoms (*rs* of .61 and .58), and social anxiety (*rs* of .58 and .57). Findings from Fergus and Wu suggested that NPO is common to symptoms of many emotional disorders.

There are divergent conclusions as to the relevance of NPO to emotional disorders. There are several possible reasons for the noted inconsistency across studies. One relates to breadth of symptom assessment. Some studies did not assess for worry and depression, whereas others involved a narrow assessment of anxiety. Only one study assessed for obsessive-compulsive symptoms. Second, the samples have varied and few studies have examined relations between NPO and symptoms using clinical samples. The study that used a clinical sample was relatively small (i.e., $N = 45$; Dugas et al., 2005), which provided reduced statistical power to detect and evaluate fine-grained NPO-symptom relations. Third, the standard for defining specificity has differed across studies: Some compared raw correlations whereas others examined unique

associations controlling for covariates. Overall, methodological differences across studies preclude firm conclusions as to the transdiagnostic status of NPO and warrant further study.

Addressing the noted methodological differences of prior studies is an important step in further evaluating the transdiagnostic importance of NPO. The present study was a targeted examination of NPO symptom-level specificity that (a) assessed for anxiety, depression, and obsessive-compulsive symptoms, (b) assessed a broad range of anxiety symptoms (worry, social anxiety, panic), (c) examined NPO-symptom relations using a relatively large clinical sample, and (d) examined multiple tests of specificity. We operationalized specificity in two ways following the methods of prior studies. Following two of the reviewed studies (Fergus & Wu, 2011; Robichaud & Dugas, 2005b), we examined whether a given symptom shared a significantly stronger zero-order correlation with NPO relative to other symptoms. Following Haugh (2006), we examined whether each symptom continued to share a significant association with NPO while controlling for the overlap among the other assessed symptoms. In addressing previous limitations, we expected to support the commonality of NPO to all of the symptoms via (1) statistically significant and equivalent zero-order correlations between NPO and all assessed symptoms and (2) statistically significant and equivalent unique associations between NPO and each symptom while controlling for overlap among the assessed symptoms.

Method

Participants

Participants were 132 adults with a primary diagnosis of an anxiety disorder, a mood disorder, or obsessive-compulsive disorder (OCD), unaccompanied by diagnoses of psychosis or active (untreated) substance abuse (established via semi-structured interview; see below). The frequency of primary diagnoses was 50 (37.9%) OCD; 23 (17.4%) GAD; 22 (16.6%) panic

disorder; 12 (9.1%) social anxiety disorder; 10 (7.6%) major depressive disorder; eight (6.1%) anxiety disorder NOS; three (2.3%) posttraumatic stress disorder; two (1.5%) depressive disorder NOS; and two (1.5%) specific phobia. The majority of participants ($n = 105$; 79.5%) were diagnosed with multiple disorders. The most common additional diagnoses were major depressive disorder ($n = 48$) and GAD ($n = 20$). Diagnoses were based on criteria from the *Diagnostic and Statistical Manual of Mental Disorders IV* (American Psychiatric Association [APA], 2000). The sample had a mean age of 29.6 ($SD = 13.0$) years, was 58.3% female, and self-identified primarily as Caucasian (93.9%). Approximately 6.1% of the sample reported being of Spanish, Latino, or Hispanic decent.

Measures

Negative Problem Orientation Questionnaire (NPOQ; English version: Robichaud & Dugas, 2005a). The NPOQ uses 12 items to assess beliefs related to holding a NPO on a 5-point (1 to 5) scale. Gosselin and colleagues developed a French version of the NPOQ (Gosselin, Pelletier, & Ladouceur, 2000, 2001) that was later translated into English (Robichaud & Dugas, 2005a). The NPOQ was created to address limitations of the NPO scale of the Social Problem-Solving Inventory-Revised (SPSI-R; D’Zurilla, Nezu, & Maydeu-Olivares, 1998). For example, Robichaud and Dugas asserted that the NPO scale of the SPSI-R does not separately assess NPO from negative emotional responses to problems. Despite conceptual differences, the NPOQ correlates strongly with the NPO scale of the SPSI-R ($r = .83$; Robichaud & Dugas, 2005a) and the two NPO scales evidence a nearly identical pattern of correlations with mood and anxiety symptoms (Robichaud & Dugas, 2005a). The NPOQ demonstrated good internal consistency in this study (Cronbach’s $\alpha = .95$).

Penn State Worry Questionnaire (PSWQ; Meyer, Miller, Metzger, & Borkovec,

1990). The PSWQ has 16 items to assess the tendency to engage in excessive and uncontrollable worry on a 5-point (1 to 5) scale. It correlates strongly with other indices of worry ($r = .70$; Meyer et al., 1990). The PSWQ was used in this study because we sought to extend prior assertions that NPO is worry-specific (Robichaud & Dugas, 2005b). The PSWQ demonstrated good internal consistency in this study ($\alpha = .92$).

Center for Epidemiologic Studies-Depression (CES-D; Radloff, 1977). The CES-D is a 20 measure that assess depression symptoms over the past week on a 4-point (0 to 3) scale. Participants completed the original CES-D. However, following the recommendations of Carleton et al. (2013), we scored the CES-D using a 14-item subset of items that improves upon the psychometric properties of the 20-item version. The 14-item subset of items is termed the CES-DR. The CES-DR shares a near-perfect correlation with the CES-D (r s ranging from .95-.99; Carleton et al., 2013) and demonstrated good internal consistency in this study ($\alpha = .89$).

Social Interaction Anxiety Scale (SIAS; Mattick & Clarke, 1998). The SIAS is a 20-item measure that assesses cognitive, affective, and behavioral reactions to social interactions on a 5-point (0 to 4) scale. The SIAS was scored to create a 17-item straightforward-worded index following the recommendations of Rodebaugh, Woods, and Heimberg (2007). The SIAS correlates strongly with other social anxiety measures (r s ranging from .66-.74; Mattick & Clarke, 1998) and demonstrated good internal consistency in this study ($\alpha = .96$).

Obsessive-Compulsive Inventory-Revised (OCI-R; Foa et al., 2002). The OCI-R uses 18 items to assess obsessive-compulsive symptoms. It uses a 5-point (0 to 4) scale and correlates strongly with other obsessive-compulsive symptom measures (r s ranging from .53-.85; Foa et al., 2002). The OCI-R demonstrated good internal consistency in this study ($\alpha = .85$).

The Panic and Agoraphobia Scale (PAS; Bandelow, 1999). The PAS uses 13 items to

assess panic attacks (frequency, severity, and duration), agoraphobia, anticipatory anxiety, disabilities, and worry about health on a 5-point (0 to 4) scale. The PAS correlates moderately to strongly with other measures of panic and anxiety (*rs* range from .42-.81; Bandelow, 1999). The PAS demonstrated good internal consistency in this study ($\alpha = .92$).

Procedure

Participants were recruited from an outpatient treatment program that provided psychotherapy five days per week, for at least 3 hours each day. Participants completed pencil-and-paper questionnaires at the time of their initial assessments, during which eligibility for treatment was determined. Diagnoses were based on the Mini International Neuropsychiatric Interview (Sheehan et al., 1998), administered by master or doctoral level clinicians. When more than one diagnosis was assigned, “primary” status was determined via collaboration between clinician and patient to discern which disorder led to greater distress and impairment.

Data Analytic Strategy

We initially investigated zero-order NPO-symptom correlations. Next, we used tests of the strength of dependent correlations (Meng, Rosenthal, & Rubin, 1992) to compare the magnitude of NPO-symptom correlations. We then used multiple linear regression to examine for a unique association between NPO and each symptom. We controlled for the effects of the other symptoms by simultaneously entering all of the symptom measures into the same step of a regression model with the NPOQ as the criterion. Squared semi-partial correlations were used to examine the magnitude of each unique association. Of note, the PSWQ and CES-DR both assess substantial negative affect components (plus content more specific to worry and depression, respectively). The regression analyses allowed us to indirectly account for the influence of negative affect, which was an appropriately strong test of specificity.

Results

Zero-Order Correlations

Descriptive statistics and zero-order correlations are presented in Table 1. The NPOQ correlated significantly positively with all symptom measures at the zero-order level, with the magnitude of NPO-symptom correlations consistent with those previously found by Dugas et al. (2005) using a clinical sample. Via tests of dependent correlations, the NPOQ correlated significantly more strongly with the PSWQ relative to the OCI-R ($z = 2.28, p < .05$) and PAS ($z = 2.44, p < .05$). The NPOQ correlated statistically equivalently with the PSWQ relative to the CES-DR ($z = 0.85, ns$) and the SIAS ($z = 0.84, ns$). The NPOQ correlated statistically equivalently with the CES-DR relative to the SIAS ($z = 0.00, ns$) and OCI-R ($z = 1.47, ns$), but correlated significantly more strongly with the CES-DR relative to the PAS ($z = 2.00, p < .05$). The NPOQ correlated statistically equivalently with the SIAS, OCI-R, and PAS (z s ranged from 0.20 to 1.55, *ns*).

Regression Analyses

Regression results are presented in Table 2. The NPOQ shared significant unique associations with the PSWQ, CES-DR, and SIAS, but neither the OCI-R nor the PAS. The effect sizes were small (as assessed using squared semi-partial correlations).

Discussion

The present results indicate that NPO is broadly applicable to emotional disorders, as NPO correlated with all of the assessed symptom types. Attention, though, should be drawn to the magnitude of the observed raw and unique associations. NPO shared the largest raw relation with worry and shared the most robust unique association with worry, which could be interpreted as indicating that NPO is particularly important to worry. Nonetheless, explicit tests of the

magnitude of these zero-order correlations and regression analyses revealed that NPO shared strong relations with depression and social anxiety as well.

NPO was not uniquely associated with obsessive-compulsive or panic symptoms, which diverged from predictions. Worry spans across emotional disorders (Barlow, 2002) and is especially prominent within OCD and panic disorder. For example, among anxiety and related disorders, Olatunji, Wolitzky-Taylor, Sawchuk, and Ciesielski (2010) conceptualized worry within GAD as being most similar in its severity to worry in OCD and panic disorder. The observed raw correlation between NPO and either obsessive-compulsive or panic symptoms may thus be, at least partially, attributable to overlap with worry. An additional possibility for why NPO was not uniquely associated with obsessive-compulsive or panic symptoms is that OCD and panic disorder share relatively robust associations with negative affect (Kotov, Gamez, Schmidt, & Watson, 2010). Negative affect was indirectly accounted for in this study via simultaneously controlling for worry and depression. Future studies could more fully examine the impact of negative affect on NPO-symptom relations by including a measure that directly assesses negative affect. Overall, the present findings indicate that the impact of NPO on OCD and panic disorder is likely accounted for by shared variance with related variables.

An interesting possibility put forth by McEvoy and Mahoney (2012) may help explain why NPO was uniquely related to depression and social anxiety, even though both symptom types also overlap with worry and negative affect. McEvoy and Mahoney speculated that cognitive variables are strongly related to worry because cognitive variables are an important part of a broader construct, such as a repetitive thought. McEvoy and Mahoney identified three forms of repetitive thought for which cognitive variables may be particularly useful for better understanding, which included worry, rumination, and post-event processing. Rumination and

post-event processing are closely tied to depression and social anxiety, respectively. When confronted with a problem, individuals may engage in negatively valenced forms of repetitive thought as a result of NPO. Indeed, Watkins (2008) asserted that repetitive thought arises when an individual perceives a discrepancy between a current state and a desired state. Whereas the focus of problems may differ across emotional disorders (e.g., a sense of loss in depression, interpersonal shortcomings in social anxiety), one commonality for emotional disorders may include NPO engendering negatively valenced repetitive thought in response to problems. We suggest that the scope of future studies examining relations between NPO and repetitive thought be broadened beyond the current focus on the NPO-worry relation.

To the degree to which NPO spans across emotional disorders, it becomes increasingly important to establish the distinctiveness of NPO from related putative transdiagnostic variables. As described, IU is another variable within Dugas et al.'s (1998) model and is considered to have transdiagnostic importance (Carleton, 2012; Gentes & Ruscio, 2011). To date, preliminary data suggest that NPO is distinct from IU. For example, Fergus and Wu (2011) found that NPO continued to share an association with symptoms of emotional disorders after accounting for IU. Much less is known about the distinctiveness of NPO from other putative transdiagnostic variables, such as perceived control. It is important to consider the distinctiveness of NPO from perceived control because the concept of perceived control is central to the conceptualization of problem orientation within social-problem solving theory (Nezu, 2004) and perceived control is an established vulnerability for emotional disorders (Barlow, 2002).

Robichaud and Dugas (2005b) found that NPO was distinct from self-mastery, which is an aspect of perceived control (Weems & Silverman, 2006). However, self-mastery diverges from the concept of perceived control most commonly described in relation to emotional

disorders. In the context of Barlow's (2002) model, perceived control relates to a perceived inability to alter potentially negative events. The measure most commonly used to assess Barlow's concept of perceived control is the Anxiety Control Questionnaire-Revised (ACQ-R; Brown, White, Forsyth, & Barlow, 2004). The ACQ-R assesses the degree to which one's behavior can affect outcomes (e.g., *There is little I can do to change frightening events*). NPO primarily relates to self-efficacy (Nezu, 2004) and self-efficacy is a type of perceived control (Weems & Silverman, 2006). The NPOQ assesses self-competency coping with problems (e.g., *I often doubt my capacity to solve problems*; Robichaud & Dugas, 2005a) rather than the degree to which behavior can affect potentially negative events, as is assessed by the ACQ-R. Conceptually, NPO and Barlow's definition of perceived control thus appear distinct.

Gallagher, Naragon-Gainey, and Brown (2014) consider the common components of cognitive-behavioral therapies (CBTs), such as psychoeducation, cognitive reappraisal, and exposure, to target perceived control. Gallagher et al. found evidence to suggest that increased perceived control over emotional experiences was related to symptom reduction for anxiety and related disorders in response to CBT. Perceived control is therefore considered an important target of intervention. In fact, researchers consider perceived control, particularly perceived emotional control, and self-efficacy beliefs as distinct possible mechanisms of change for CBTs (Hofmann, 2000). As an example of the purported impact of self-efficacy, Hofmann asserted that individuals with social anxiety desire to make positive social impressions and yet do not perceive themselves as possessing effective responses to achieve positive impressions. From a social-problem solving perspective, the belief that one is incapable of solving problems within social situations would reflect NPO. Hofmann speculated that CBTs may increase self-efficacy and increased self-efficacy may be one reason why the therapies lead to symptom reduction. Given

that NPO is viewed as a type of self-efficacy (Nezu, 2004), NPO could be a candidate mechanism of change for, at least some, CBTs. Presently, our understanding of the possible impact of NPO on symptom reduction is limited because NPO is not routinely assessed within standard CBTs for emotional disorders. By evaluating NPO during the course of CBTs, future studies can gain a better understanding as to whether NPO is adequately targeted within CBTs and NPO is related to symptom reduction. Such studies could also help tease apart the unique contributions of NPO and perceived control in relation to symptom reduction.

Limitations surrounding this study must be acknowledged. First, observed correlations among the study variables likely were inflated nonspecifically due to common method variance (i.e., fixed order, self-report). An important extension will be to examine the impact of experimentally manipulating aspects of NPO. One advantage of the present methodology was that it allowed us to simultaneously address relations between NPO and several symptom types, which we deemed to be an important analysis given the current state of the literature. Shared method variance may have inflated the values, but does not account for the general pattern of correlations among these variables. Second, although group differences based on diagnosis were not examined, no inter-rater reliability estimates were available for diagnoses. Replication of these findings using a comprehensive diagnostic instrument with assessed reliability may be warranted, particularly for studies that aim to determine if groups with one primary diagnosis versus another provide different data. Third, although mean-level depression scores of these clinical participants were elevated relative to prior studies in the NPO literature using nonclinical participants, only a limited number of respondents had a primary mood disorder. As such, the specificity of NPO to mood versus anxiety symptoms may be addressed further by comparing results to a primarily-depressed control group. Finally, we only indirectly assessed for the

contribution of negative affect via controlling for worry and depression. Both worry and depression assess substantial negative affect components. Nonetheless, it is possible that the impact of negative affect was not fully accounted for in this study. Future research may seek to provide a direct assessment of negative affect when examining NPO-symptom relations.

Considered with prior findings indicating that NPO plays a causal role in negative affective states, the present results highlight the possibility that NPO is a cognitive vulnerability common to a relatively broad range of emotional disorders. The distinction of NPO from related constructs, such as perceived control, is an important area of future investigation for better understanding the unique contributions of NPO to emotional disorders. Better understanding the relevance of NPO to emotional disorders undoubtedly will help inform the conceptualization and treatment of disorders that share NPO as a cognitive underpinning.

Declaration of Interest

The authors declare no conflicts of interest regarding this submission.

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Table 1

Descriptive Statistics and Zero-Order Correlations.

Variable	Mean	(SD)	1	2	3	4	5
1. Negative Problem Orientation Questionnaire	34.92	(12.56)	-				
2. Penn State Worry Questionnaire	65.65	(11.86)	.54** ^a	-			
3. Center for Epidemiologic Studies-Depression Revised	24.76	(9.43)	.47** ^{a,b}	.33**	-		
4. Social Interaction Anxiety Scale	27.24	(17.48)	.47** ^{a,b,c}	.32**	.32**	-	
5. Obsessive Compulsive Inventory-Revised	17.14	(11.04)	.34** ^{b,c}	.32**	.29**	.27**	-
6. Panic and Agoraphobia Scale	16.99	(11.71)	.32** ^c	.29**	.55**	.23*	.27**

Note. $N = 132$. ** $p < .01$; * $p < .05$ (two-tailed). Column 1 values with different superscripts are significantly different ($p < .05$; two-tailed) via planned comparisons.

Table 2

Regression Results Examining Unique Associations between Negative Problem Orientation and Symptoms.

Variable	Negative Problem Orientation Questionnaire		
	β	<i>t</i> -value	semi-partial r^2
Penn State Worry Questionnaire	.34	4.63**	.09
Center for Epidemiologic Studies-Depression Revised	.25	2.96**	.04
Social Interaction Anxiety Scale	.26	3.54**	.06
Obsessive Compulsive Inventory-Revised	.09	1.22	.01
Panic and Agoraphobia Scale	.01	0.06	.00

Note. $N = 132$. ** $p < .01$ (two-tailed).