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Positive extreme responding after cognitive therapy for depression: Correlates and potential mechanisms

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ABSTRACT

"Extreme responding" is the tendency to endorse extreme responses on self-report measures (e.g., 1s and 7s on a 7-point scale). It has been linked to depressive relapse after cognitive therapy (CT), but the mechanisms are unknown. Moreover, findings of positive extreme responding (PER) predicting depressive relapse do not support the original hypothesis of "extreme" negative thinking leading to extreme negative emotional reactions. We assessed the relationships between post-treatment PER on the Dysfunctional Attitudes Scale (DAS) and Attributional Style Questionnaire (ASQ) and these constructs: coping skills, in-session performance of cognitive therapy skills, age, and estimated IQ. Significant correlates were entered into a model predicting rate of relapse to determine whether these constructs explained the relationship between PER and relapse. The sample consisted of 60 individuals who participated in CT for moderate to severe depression. Results indicated the following relationships: a negative correlation between ASQ PER and IQ, negative correlations between DAS PER and performance of CT skills and planning coping, and a positive correlation between DAS PER and behavioral disengagement coping. IQ scores fully accounted for the relationship between ASQ PER and relapse. These results suggest two potential mechanisms linking PER to relapse: cognitive limitations and coping deficits/cognitive avoidance.

Research on relapse after depression treatment has focused on a style of responding to self-report questionnaires known as "extreme responding" (Beevers, Keitner, Ryan, & Miller, 2003; Teasdale et al., 2001). Individuals with this response style are identified by their tendency to endorse "extreme" end of scale responses (1s and 7s) to cognitive questionnaires such as the Attributional Style Questionnaire (ASQ; Peterson et al., 1982) or Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978). This extreme response style has been linked to depressive relapse in at least three studies (Beevers et al., 2003; Forand & DeRubeis, 2014; Teasdale et al., 2001). However, other studies have failed to find evidence for such a relationship, possibly for reasons detailed below (Ching & Dobson, 2010; Jacobs et al., 2010; Peterson et al., 2007).

Extreme responding has been hypothesized to reflect a rigid depressogenic thinking style likened to cognitive biases such as "all or nothing" thinking (Teasdale et al., 2001). However, a close examination of the evidence suggests this account is not wholly satisfactory. In the cognitive model of depression, factors that confer vulnerability to depression are theorized to positively covary with depressive symptoms (Haaga, Dyck, & Ernst, 1991; Kovacs & Beck, 1978). Research on extreme responding has produced findings inconsistent with this prediction. For example, Teasdale et al. (2001) found that individuals with residual depressive symptoms endorsed *fewer* extreme responses than never-depressed individuals. With respect to symptom change, extreme responding on measures such as the ASQ has been found to remain stable from pre to post treatment (Ching & Dobson, 2010; Peterson et al., 2007; Teasdale et al., 2001). In contrast, studies using the DAS tend to find that extreme responding *increases* as symptoms improve (Beevers et al., 2003; Forand & DeRubeis, 2014; Jacobs et al., 2010). This increase in extreme responses is observed even while total scores

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on the DAS are decreasing (Haaga et al., 1991). These results lead us to wonder if the association of extreme responding and relapse might be due to a process other than an extreme depressogenic style of thinking.

Overall, the research on extreme responding in depression has suffered from several problems, including non-standard operationalization of the construct, a failure to differentiate between an "extreme response style" and legitimate end of scale responses, and an unsubstantiated link between the behavior and its underlying theoretical cause. In our previous paper, we sought to address the first two methodological issues (Forand & DeRubeis, 2014). In the current paper, we seek to investigate correlates of extreme responding to improve our understanding of this construct and its potential causes. Given the uncertain construct validity of extreme responding in the studies we have reviewed, it is important to evaluate the nomological network of extreme responding on the DAS and ASQ. In this paper, we examine the relationships between extreme responding (specifically positive extreme responding [PER]) and several plausibly related constructs, and assess whether any of these related constructs might account for the relationship between extreme responding and risk of relapse following cognitive therapy (CT) for depression.

1. Positive versus negative extreme responding

Perhaps discrepant findings regarding extreme responding on the ASQ and DAS are due to extreme responses on these measures having different underlying causes. The frequency of positive vs. negative extreme responses differs across instruments. PER is defined as extreme agreement with functionally keyed items and extreme disagreement with dysfunctionally keyed items, whereas negative extreme responding is the reverse. On the ASQ, individuals tend provide roughly equal numbers of positive and negative extreme responses (Peterson et al., 2007; Teasdale et al., 2001), whereas respondents to the DAS tend to provide far more positive than negative extreme responses (Beevers et al., 2003; Forand & DeRubeis, 2014; Jacobs et al., 2010). These different patterns of responses could reflect differences in questionnaire design or more fundamental differences in the causal processes at work in determining how one responds to these measures. Both the correlation of extreme responses across measures and the similarity or distinctiveness of the correlates of these measures could be used to evaluate these possibilities.

To the extent that extreme responses are related to different processes, one key concept is the distinction between style and content (Forand & DeRubeis, 2014). Extreme responses might be accounted for either by a general style of responding or by a legitimate endorsement of the item content. "Style" extreme responses are thought to bear little relation to the specific questionnaire item, but rather are automatic, impulsive, and occur without careful consideration of the item content. In contrast, "content" extreme responses are made when respondent deliberately and legitimately endorses extreme agreement or disagreement with this content. Content responses are thought to accurately indicate high levels of dysfunctional attitudes (DAS), very negative attributional style (ASQ), or the opposite extreme (high levels of healthy, functional beliefs).

The style versus content distinction is important for understanding the relationship between extreme responding and relapse, and is the reason to prefer PER as an index of extreme response style. PERs include both content responses (legitimate denials of dysfunction) and style responses (potentially indicating the presence of dysfunction). Whereas the content responses are functional and expected to predict lower risk of relapse, the style responses are thought to be dysfunctional and are expected to predict greater risk of relapse. Whereas content and style PER are expected to be associated with risk of relapse in opposite directions, negative extreme responding of either type would be expected to predict greater relapse risk. In our recent paper, we demonstrated a method that reliably distinguished between style and content PER on the DAS, and found that greater proportions of style responses versus content PER (but not total PER) predicted relapse after CT for depression (Forand & DeRubeis, 2014). Because the relation of PER with risk of relapse (and other constructs) is more informative in determining the role of content vs. style, we focus on PER in this paper.

2. Potential mechanisms of positive extreme responding and links to relapse

Whatever the mechanism underlying extreme responding, that mechanism would be expected to predict greater risk for relapse. Consistent with this, Teasdale et al.s (2001) original hypothesis was that extreme responding was the result of rapid, automatic information processing, rather than a more controlled mode of processing involved in reappraisal. However, as we argued in Forand and DeRubeis (2014), the hypothesized automatic negative emotional reaction to item content would not be expected when one is providing PERs. Both Teasdale et al. (2001) and Forand and DeRubeis (2014) proposed an alternative hypothesis: PER might be a form of cognitive avoidance, or a set of strategies including suppression and thought substitution that are used to manage and minimize distressing cognitions. Such avoidant strategies have been linked to greater vulnerability to depression (Beevers & Meyer, 2004; Bockting et al., 2006). Avoidant individuals might find the content of cognitive questionnaires to be distressing and avoid contemplating them for long enough to determine their actual degree of agreement. As a result, they may "default" to the strongest possible denial of dysfunction.

If cognitive avoidance underlies PER, we would expect PER to correlate with avoidant strategies assessed via coping questionnaires. Insofar as patients rely on these strategies, we would also expect them to be at a disadvantage for acquiring the skills taught in CT, as these skills involve identifying and processing negative emotions and thoughts. Strunk, DeRubeis, Chiu, and Alvarez (2007) found that ratings of patients' use of CT skills predicted protection from relapse. We suspected that a reluctance to fully engage with dysfunctional thinking would be associated with lower ratings of one's use of CT strategies.

Interestingly, there is also evidence that extreme responding is correlated with characteristics unrelated to depression. For example, extreme responding is negatively associated with measures of intelligence and years of education (Greenleaf, 1992; Light, Zax, & Gardiner, 1965; Meisenberg & Williams, 2008). It has also been found to increase with age (Greenleaf, 1992; Meisenberg & Williams, 2008). Others have found evidence that extreme responding, particularly PER, is related to certain simplistic, concrete and rigid thinking styles (Harvey, 1965; Naemi, Beal, & Payne, 2009; White & Harvey, 1965). This set of findings suggests that extreme responding — and particularly PER — might be related to certain cognitive limitations, including lower cognitive abilities, and trait-related or age-related rigidity. Cognitive limitations might interfere with individuals ability to learn and apply CT skills, thus impairing their ability to adapt to novel stressful situations post-treatment. Constructs related to cognitive limitations or ability include age, years of education, and estimated IQ.

3. Purpose of this study

In this study, we explore the correlations between two measures