Prospective Cognitions in Anxiety and Depression: Replication and

Methodological Extension

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Abstract

The present study presents a replication and methodological extension of MacLeod, Tata, Kentish, and Jacobsen (1997) with a nonclinical sample, using future-directed imagery to assess prospective cognitions. Results showed that only anxiety (but not depression) was related to enhanced imagery for future negative events. Both anxiety and depression showed significant zero-order correlations with reduced imagery for future positive events. However, when the overlap between anxiety and depression was controlled for, only depression (but not anxiety) showed a unique association with reduced imagery for positive events. Implications of these findings for cognitive models of anxiety and depression are discussed.

Keywords: anxiety, depression, imagery, affect, hopelessness

Introduction

Substantial evidence accumulated over the last 15 years suggests that anxiety and depression are each associated with specific cognitions (for a review, see D. Clark & Steer, 1996). According to this research, anxious thought with a focus on threat and danger is primarily future-oriented whereas depressive thought with a focus on loss and failure is primarily past-oriented. Recently, however, MacLeod and his colleagues demonstrated that future-directed cognitions play an important role not only for anxiety, but also for depression (MacLeod & Byrne, 1996; MacLeod, Byrne, & Valentine, 1996; MacLeod & Cropley, 1995; MacLeod, Tata, Kentish, & Jacobsen, 1997). Moreover, MacLeod et al. postulated that positive and negative future-directed cognitions in anxiety and depression follow the same pattern as positive and negative affect. Research has shown that both anxiety and depression are associated with high levels of negative affect whereas only depression is associated with low levels of positive affect (e.g., L. Clark & Watson, 1991). Parallel to this, MacLeod et al. hypothesized that anxiety and depression are both associated with high levels of negative future-directed cognitions whereas only depression is associated with low levels of positive future-directed cognitions.

The empirical evidence regarding this hypothesis, however, is mixed. MacLeod and Byrne (1996) compared nonclinical groups of anxious participants and mixed anxious-depressed participants with controls. In line with expectations, they found that both anxious and anxious-depressed participants showed high levels of negative future-directed cognitions compared with controls, but only anxious-depressed participants showed low levels of positive future-directed cognitions. MacLeod et al. (1997) compared clinical groups of anxious participants and depressed participants with controls. Again, anxious participants showed high levels of negative future-directed cognitions and depressive participants (but not anxious participants) showed low levels of positive future-directed cognitions compared with controls. However, contrary to expectations, depressive participants did not show elevated levels of negative future-directed cognitions.

The present study aimed to replicate the studies of MacLeod and Byrne (1996) and MacLeod et al. (1997). However, whereas MacLeod et al. used the number of self-generated future positive and negative events as a fluency measure of future-directed thinking, the present study used imageability ratings for a given list of future positive and negative

events. Furthermore, following a suggestion made by MacLeod and Byrne (1996), anxiety and depression were treated as continuous variables and the overlap was controlled statistically.

Method

Participants

A sample of 70 undergraduate students (46 female) was recruited at Pennsylvania State University. Average age was 18.6 years (*SD* = 1.0). All participants volunteered in exchange for extra course credit.

Measures

To assess imagery for positive and negative future events, participants were presented the list of subjective probability items from MacLeod et al. (1996, p. 85). This list contains 20 negative future events (e.g., "You will have a serious disagreement with a good friend", "You will fall badly behind in your work") and 10 positive future events (e.g., "You will make good and lasting friendships", "You will do well on your course"). Participants were instructed to "to form a mental image for each potential future scenario" and then rate (a) speed, (b) vividness, and (c) detailedness of their mental image (cf. Cartwright, Marks, & Durrett, 1978; Watts, Sharrock, & Trezise, 1986), using visual analog scales of 30 mm in length. Ratings of speed, vividness, and detailedness showed intercorrelations ranging from .55 to .82. They were therefore averaged to form one index of imagery for negative future events (*M* = 15.93, *SD* = 3.45, α = .86) and one of imagery for positive future events (*M* = 20.36, *SD* = 3.60, α = .87). The correlation between these two indices was *r* = .18, *NS*.[1]

To measure anxiety, the trait scale of the State-Trait Anxiety Inventory (Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) was administered (*M* = 37.09, *SD* = 8.86, α = .91). To measure depression, the short form of the Beck Depression Inventory (BDI) (Beck & Beck, 1972) was employed (*M* = 4.39, *SD* = 4.60, α = .88).

Preliminary analyses showed that BDI scores were severely skewed. They were therefore log-transformed to meet the normality requirements of the analyses to follow. Multiple sample analysis using LISREL indicated that the correlation matrices of male and female participants did not differ. Thus, data were collapsed across gender. Screening the tolerance of all variables, no indication of multicollinearity was detected.

Results

In line with previous findings (e.g., Dobson, 1985), anxiety and depression showed substantial overlap, *r* = .71, *P* < .001. Nevertheless, they displayed distinct correlation patterns with imagery for future positive and negative events (Table 1). In the bivariate correlations, anxiety (but not depression) was correlated with enhanced imagery for nega-

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[1]All *P* values are from one-tailed tests.

tive future events. Depression was correlated only with reduced imagery for positive future events. Unexpectedly, anxiety was also correlated with reduced imagery for positive future events. This correlation, however, could be attributed to the substantial overlap between anxiety and depression as was demonstrated by multiple regression analyses in which anxiety and depression were entered simultaneously. The semi-partial correlations associated with these multiple regressions showed the same pattern as MacLeod et al.'s (1997) findings: Anxiety (but not depression) showed a unique association with high levels of negative future-directed imagery whereas depression (but not anxiety) showed a unique association with low levels of positive future-directed imagery (Table 1).[2]

Table 1. *Anxiety, Depression, and Imagery for Future Positive and Negative Events: Bivariate and Semi-Partial Correlations*

Imagery for . . .	Bivariate		Semi-partial	
	Anxiety	Depression	Anxiety	Depression
Future negative events	.32**	.13	.33**	–.14
Future positive events	–.33**	–.37***	–.10	–.19*

Note. N = 70.
*P < .05, **P < .01, ***P < .001.

Discussion

Overall, the present results replicate the findings of MacLeod et al. (1997). Moreover, using imageability ratings for a given list of future events to measure future-directed thinking represents an important methodological extension to their study. First, the present method permits greater control of the events which participants think about. Second, it is less dependent on participants' verbal ability/creativity. Third, whereas verbal and analytic ideation may inhibit emotional experience, imaginal thinking is likely to facilitate it (Tucker & Newman, 1981). With its perception-like quality, imagery is closely connected to the experiential system. Therefore, measures of imagery may represent an important addition to measures of verbal production in the assessment of fluency in future-directed thinking.

Together with MacLeod et al.'s (1997) findings, the present findings have potentially important implications for cognitive theory and research on anxiety and depression. First, they suggest that positive and negative prospective cognitions may not follow the same pattern as positive and negative affect. Moreover, despite much available literature on negative thinking in depression, they suggest that negative future-directed thinking

[2]In standard multiple regression, the squared semi-partial correlation represents the unique contribution that a variable makes in the prediction of a dependent variable (Tabachnick & Fidell, 1989, pp. 151-153).

may be more closely related to anxiety than to depression. Finally, they suggest that reduced levels of positive future-directed thinking may be more closely related to depression than to anxiety. Because lack of positive expectations may be a sign of hopelessness, these findings further substantiate claims made by proponents of the helplessness-hopelessness perspective on anxiety and depression that hopelessness is not only a central feature of depression, but also a feature that may differentiate depression from anxiety (Alloy, Kelly, Mineka, & Clements, 1990).

In future studies on anxiety, depression, and future-directed imagery, it would be useful to include a manipulation check of the imagery instruction. In the present study, it remains unclear whether participants actually followed the instruction to imagine positive or negative events and, if so, whether the contents of their future images were truly positive or negative. Moreover, future studies would profit from using larger samples. Finally, the present findings await replication with clinical participants. Notwithstanding these limitations, the present study shows that research on anxiety and depression may benefit from paying closer attention to future-directed imagery in order to draw a more comprehensive picture of anxiety, of depression, and of the differences between the two.

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