Relationship of Cognitive Flexibility to Depression and Anxiety Symptoms in a Large Community Sample of High School Students

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Abstract

The purpose of the present study was to evaluate the association of cognitive flexibility as measured by explanatory style and dysfunctional attitudes to changes in depressive and anxiety symptoms one year later. Participants were 1482 Oregon high school students. Findings reveal that even when controlling for multiple covariates associated with depression, flexibility in dysfunctional attitudes was related to changes in depressive symptoms one year later, with more rigid individuals showing greater depressive symptoms.

Background

Cognitive theories of depression (Abramson et al., 1989; 1978; Beck, 1967; 1976) have described and evaluated the role that cognitive styles (e.g., explanatory style & dysfunctional attitudes) play in the etiology, onset, maintenance, and recovery from depression. However, one aspect common to both theories and to their respective cognitive diatheses is their emphasis on the content of an individual's cognitions.

Fresco and colleagues (Fresco & Craighead, 2005; Fresco, Schumm, & Dobson, 2005) have recently begun to supplement the research on cognitive styles by proposing a cognitive process counterpart to explanatory style, called explanatory flexibility. In contrast to explanatory style, which emphasizes the content of one's explanations for negative events, explanatory flexibility emphasizes the responsiveness of the individual to variations in situational context in arriving at explanations of events. Individuals who view each situation separately and contextually are considered to be flexible in their assigning of causes to events.

Like explanatory style, explanatory flexibility is computed from the Attributional Style Questionnaire (Peterson et al., 1982). However, instead of summing or averaging a participant's responses to the stable and global items, an intra-individual standard deviation is derived for each participant's responses to these items. In their initial report, Fresco and Craighead (2005) found that explanatory flexibility was negatively correlated with depression and moderated the relationship between negative life events and depression. The form of this moderation was such that negative life events were strongly related to depression when flexibility was low (rigid) and relatively unrelated to depression when flexibility was high (flexible).

Predictions

• Individuals who are more flexible in explanatory style and dysfunctional attitude endorsement will show fewer symptoms of depression one year later.

• Cognitive flexibility will present a vulnerability to increased depression following the occurrence of negative life events.

• The relationship between cognitive flexibility and changes in anxiety symptoms will be explored, to examine whether flexibility is differentially associated with depression and anxiety.

Method

Participants and Procedures. In three randomly selected cohorts from high schools in Oregon, participants completed an initial assessment and a follow-up one year later. The current analyses included 1501 participants: 808 girls and 693 boys. (for more details about the study sample and procedures, see Lewinsohn et al., 1993).

Measures. *Cognitive Style and Flexibility:* Two cognitive risk factors for depression were assessed using self-report measures. The Kastan Attributional Style Questionnaire (CASQ; Kaslow, Tanenbaum & Seligman, 1978) includes 48 items asking participants to select one of two causes for a hypothetical event. Negative global and stable attributions formed an index of explanatory style. Nine items from the Dysfunctional Attitudes Scale (DAS; Weissman & Beck, 1978) assessed dysfunctional attitudes.

Depressive and Anxiety Symptoms: Two common self-report measures assessed depressive symptoms: the BDI (Beck, Rush, Shaw & Emery, 1979) and the CES-D (Radloff, 1977). Anxiety was measured using 10 items from the State-Trait Anxiety Inventory (Spielberger et al., 1970).

Prior Diagnostic Status: Prior history of psychopathology was assessed with a diagnostic interview combining features of the K-SADS epidemiologic and present episode versions (Orvaschel et al., 1982).

Negative Life Events: Participants indicated whether they had experienced any of 11 major negative events, such as death of a close relative or friend, serious illness or injury, or serious financial or relationship problems.

Results

Explanatory flexibility was highly correlated with explanatory style (r = .81), due to the fact that only individuals endorsing negative attributions showed any variability on the measure (negative attributions scored as 1, positive attributions scored as 0). Thus, an independent association between flexibility and symptoms of depression and anxiety was impossible to interpret.

Predicting depressive symptoms using DAS Flexibility. A regression analysis was performed where time 1 symptom scores were entered in the first block, covariates including sex, prior diagnostic status, and dysfunctional attitudes in a second block, flexibility in a third block, and interactions in a fourth block. Flexibility in dysfunctional attitudes was significantly associated with scores on both measures of depression (BDI: pr = -.07, p = .01; CES-D: pr = -.05, p = .01). When a second analysis was performed including negative life events as a covariate in the second block, the relationship between flexibility and depression remained the same, although the relationship with CES-D scores became only marginally significant.

The interaction terms suggest that flexibility may be particularly important in individuals with a prior diagnosis of depression. For the CES-D, a marginally significant interaction was found between prior diagnosis of MDD and DAS flexibility (pr = -.05, p = .06), such that the relationship between DAS flexibility, and not DAS scores, approached significance (pr = -.11, p = .07). For scores on the BDI, the significant three-way interaction between flexibility, prior MDD, and negative life events (pr = -.06, p = .04) showed that DAS flexibility was associated with depression in individuals without a prior diagnosis who experienced no negative life events (pr = -.08, p = .05). While there was no significant relationship with depression in those with a prior diagnosis, again, the magnitude of the effect showed a stronger association between DAS flexibility and depression, and it may be that the relatively strong association between negative life events and depression in this sample obscured the small effect for DAS flexibility.

Predicting anxiety symptoms using DAS Flexibility. Next, analyses with anxiety as the dependent variable showed that DAS flexibility was not significantly associated with increased anxiety while controlling for depressive symptoms.

When analyses were rerun predicting depression while controlling for anxiety symptoms, DAS flexibility maintained a significant association with scores on the BDI (pr = -.05, p = .05). Although the association with scores on the CES-D was non-significant when controlling for anxiety, a marginally significant interaction between prior diagnosis of MDD and DAS flexibility (pr = -.05, p = .06) again showed that for individuals with prior MDD, DAS flexibility was significantly related to time 2 depression scores (pr = -.14, p = .03).

Implications

Results provided partial support for our hypotheses. Cognitive flexibility as assessed by the dysfunctional attitudes scale was significantly associated with lower levels of depression in adolescents assessed one year later. This relationship was relatively consistent across multiple measures of depression and while controlling for symptoms of anxiety and a number of known risk factors for depression. It is important to note that the size of this effect is small; however, cognitive theories of depression have frequently shown small effect sizes (Lewinsohn, Joiner, & Rohde, 2001), and in this sample, flexibility showed a similar and sometimes stronger association with depression when compared to its parent measure.

These results suggest that cognitive flexibility may have a role in the future onset of depressive symptoms, which could have implications for cognitive therapies for depression. While current forms of CBT focus on changing maladaptive patterns of thinking, a focus on cognitive flexibility may be particularly important for those individuals who are rigid in their thinking but not necessarily negative. It is particularly noteworthy that the cognitive processes associated with depression in this sample appear to be different for those with and without a prior diagnosis of depression. Future research is necessary to determine these theoretically significant pathways, which could assist in treatment development and planning.