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Research report

Transdiagnostic mechanisms in depression and anxiety: The role of rumination and attentional control

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ABSTRACT

Background: Deficits in attentional control have been hypothesized to cause rumination, suggesting that the relationships between attentional control and clinical symptoms may be mediated in part by rumination. However, to date, no clinical study has examined these constructs transdiagnostically in a path analysis model.

Methods: Fifty-one adults presenting for treatment completed measures of self-reported attentional control, rumination, and depression and anxiety symptoms. A bias-corrected path analysis-based approach was employed to test whether indirect (i.e., mediating) effects of rumination were significantly associated with the direct effects of attentional control on depression and anxiety symptoms. Separate models for depression and anxiety symptoms were tested along with reverse models using attentional control as a proposed mediator.

Results: The relationship between attentional control and clinical symptomatology (i.e., both depression and anxiety symptoms) was mediated by rumination. Poor attentional control was associated with more rumination and consequently more severe symptoms of depression and anxiety. The reverse relationship (i.e., attentional control mediating the relationship between rumination and depression or anxiety symptoms) was not significant.

Limitations: Study design did not allow testing of temporal precedence for the mediation models. All constructs were assessed via self-report.

Conclusions: Attentional control appears to impact depression and anxiety symptoms through rumination. The pathway between poor attentional control and emotion dysregulation via rumination suggests that interventions targeting attentional control may decrease maladaptive ruminative processes, leading to improved emotion regulation and reduced clinical symptomatology. Future studies should examine the stability of this mediational relationship over time (and in the face of targeted interventions).

1. Introduction

Rumination, broadly defined as repetitive thinking about self-relevant negative information or one's symptoms, has historically been associated with depression. However, more recent work has revealed that rumination is a transdiagnostic construct relevant across mood, anxiety, and psychotic disorders (Hartley et al., 2014; Just and Alloy, 1997; McLaughlin and Nolen-Hoeksema, 2011; Mellings and Alden, 2000; Muris et al., 2005; Roelofs et al., 2008; Spasojevic and Alloy, 2001; Surrence et al., 2009; Wolkenstein et al., 2014). It is important to identify mechanisms underlying rumination in order to more effectively target this maladaptive style of thinking in treatment. To this end, recent theoretical models (De Raedt and Koster, 2010; Koster et al., 2011) propose that deficits in attentional control may underlie rumination, and thus serve as important treatment targets themselves.

Attentional control refers to the ability to direct attention toward or away from stimuli depending on current goals or task demands. Attentional control affects a number of related cognitive processes, such as working memory and inhibition. Koster et al. (2011) proposed that the crucial cognitive vulnerability factor leading to excessive or persistent rumination is poor attentional control, and more specifically impaired ability to disengage attention from negative thoughts. This hypothesis contrasts with previous theories that characterized rumination primarily in terms

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of increased attention and focus on one's symptoms and their implications (Nolen-Hoeksema, 2000; Nolen-Hoeksema and Davis, 1999; Nolen-Hoeksema and Morrow, 1991). Koster et al. (2011) suggest that individuals with good attentional control are able to disengage from negative thoughts, which allows for various emotion regulation strategies to be employed, ending the cycle of negative mood and rumination. Although Koster et al. (2011) focus exclusively on the relationship between rumination and depression, one could apply their model to explain relationships between rumination and anxiety (Mellings and Alden, 2000).

Empirical support for the theorized relationships between attentional control and rumination comes from a variety of tasks assumed to involve attentional control. For example, using a dot probe task, Donaldson et al. (2007) found that rumination was related to an attentional bias for negative words, even when controlling for depressive symptoms. Of note, several studies have shown that high trait ruminators perform more poorly than low ruminators on tasks requiring inhibition of non-valenced information (Daches et al., 2010; De Lissnyder et al., 2012; Whitmer and Banich, 2007), suggesting that the impairments in attentional control associated with rumination might not be valence-specific (however, see Tortella-Feliu et al., 2014). Self-reported attentional control has also been associated with rumination in an undergraduate sample (Fergus et al., 2012).

Although there is a wealth of data linking poor attentional control and rumination, and findings supporting their separate associations with psychopathology, there are very few studies examining these two constructs together as they relate to clinical symptoms. Furthermore, as noted in the review by Koster et al. (2011), most studies examining the relationship between rumination and attentional control have relied on undergraduate samples. To our knowledge, no study has employed mediational models to test the hypothesis that rumination mediates the relationship between attentional control and psychopathology in a clinical sample. Such data are needed as the field works to identify transdiagnostic mechanisms in order to develop more effective and targeted interventions for rumination and attentional control, as current interventions for attentional control (e.g., attention bias modification) and rumination (e.g., CBT) have room for more precision and increased efficacy in addressing these constructs.

The current study aimed to clarify the relationship between self-reported attentional control, rumination, and clinical symptomatology (e.g., anxiety and depression symptoms). Taking a transdiagnostic approach, we examined these constructs in a highly comorbid, heterogeneous, real-world patient population presenting for treatment at a partial hospital. We hypothesized that poor attentional control and higher levels of rumination would be associated with more severe depression and anxiety symptoms, and that rumination would mediate the relationship between poor attentional control and clinical symptomatology.

2. Materials and methods

2.1. Participants

Participants were patients receiving treatment at the Behavioral Health Partial Hospital Program at McLean Hospital. The partial hospital provides brief, intensive group, and individual evidenced-based psychotherapy (e.g., Cognitive Behavioral Therapy (CBT), Dialectical Behavior Therapy (DBT)) and pharmacological treatment to patients suffering from a wide range of psychiatric disorders (principally mood, anxiety, personality, and psychotic disorders; see Björgvinsson et al., 2014 for more detail regarding the treatment setting). Patients were either stepping down from an inpatient hospitalization or stepping up their level of care from the community. Patients were eligible for the study if they met criteria for a current depressive episode, as assessed by the Patient Health Questionnaire (PHQ-9), and were deemed stable enough to complete a research protocol (i.e., not actively psychotic). See Table 1 for demographic and clinical characteristics.

Table 1
Demographic and clinical characteristics ($n=51$).

Demographic characteristics	*N*	(%)
Female	33	(64.7%)
Male	18	(35.3%)
Age (M, SD)	32.78	(14.02)
Race		
White	40	(78.4%)
Multi-racial	6	(11.8%)
Did not specify	5	(9.8)
Ethnicity		
Non-Latino/a	48	(94.1%)
Latino/a	3	(5.9%)
Marital Status		
Single	32	(62.7%)
Married/Living with Partner	7	(13.7%)
Divorced/Separated/Widowed	12	(23.6%)
Highest Level of Education		
High School/GED	3	(5.9%)
Some college	23	(45.1%)
4-Year college graduate	12	(23.5%)
Post-college education	13	(25.5%)
Referral		
Stepping down from inpatient	14	(27.5%)
Stepping up from outpatient	37	(72.5%)
Co-morbid Anxiety Disorder	20	(43.5%)
Primary Diagnosis	*N*	(%)
MDD, recurrent, Severe w/o psychotic features	27	(52.9%)
MDD, recurrent, Severe with psychotic features	1	(2%)
Bipolar I Disorder, MRE depressed, Severe,without psychotic features	6	(11.8%)
Bipolar I Disorder, MRE mixed, Severe,without psychotic features	1	(2%)
Bipolar I Disorder, MRE mixed, Severe,with psychotic features	1	(2%)
Bipolar II Disorder	1	(2%)
Mood Disorder NOS	10	(19.6%)
Psychotic Disorder NOS	2	(3.9%)
Prolonged Posttraumatic stress disorder	1	(2%)

*Note.*ACS=Attentional Control Scale
RRS=Ruminative Responses Scale
CES-D-10=Center for the Epidemiological Studies of Depression-10
GAD-7=7-item Generalized Anxiety Disorder Scale.
MDD=Major Depressive Disorder
MRE=Most Recent Episode

2.2. Measures

2.2.1. Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998)

The MINI is a structured interview assessing DSM-IV Axis I disorders (e.g., mood, anxiety, substance abuse, psychosis). Each MINI diagnostic module consists of a series of screening items followed by questions about specific symptomatology. The MINI has strong reliability and validity in relation to the Structured Clinical Interview for DSM-IV (SCID-IV), with inter-rater reliabilities ranging from kappas of .89–1.0 (Sheehan et al., 1998). For the partial hospital patients, inter-rater reliability between the MINI and program psychiatrists is .69 for MDD and .75 for Bipolar Disorder–Depressed (Kertz et al., 2012).

The MINI was administered by doctoral practicum students and interns in clinical psychology who received weekly supervision by a postdoctoral psychology fellow. Training included reviewing administration manuals and completing mock interviews. All