



# Emotion regulation in bipolar disorder: Profile and utility in predicting trait mania and depression propensity



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## ABSTRACT

Current emotion regulation research in BD has tended to focus on the extent to which patients control their emotions using different cognitive strategies. Fewer studies have investigated whether patients with BD have difficulties in regulating other dimensions of emotion that serve a functional purpose and are thereby more amenable to change. To overcome this paucity of research we utilised a multi-dimensional measure of emotion regulation to characterise the emotion regulation profile of BD, and examine its utility in predicting trait mania and depression propensity. Fifty BD patients and 52 healthy controls completed the Difficulties in Emotion Regulation Scale (DERS) and the General Behaviour Inventory (GBI). Results indicated that patients had difficulties in emotion regulation across a range of dimensions. Impulse control difficulties most parsimoniously predicted trait (hypo)mania propensity in BD patients, whilst poor access to mood regulation strategies predicted depressive propensity. Predictors of the propensity to experience these moods differed in the control group. These findings represent an important step toward informing the development of new treatment strategies to remediate emotion regulation difficulties and improve BD symptomatology.

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## 1. Introduction

Bipolar disorder (BD) is a complex emotional disorder characterised by mood instability and heightened intensity of emotional experiences (Henry et al., 2008; Strejilevich et al., 2013). Although its aetiology remains unclear, difficulties in emotion regulation are becoming increasingly recognised in models of BD pathophysiology, particularly as mood lability and emotional regulation difficulties may contribute negatively to functional outcomes (Meyer et al., 2001; e.g., Green et al., 2007; Gruber et al., 2012; Townsend and Altkhuler, 2012; Stange et al., 2013; Strejilevich et al., 2013; Van Rheenen and Rossell, 2014e, 2014d).

Typically, emotion regulation is operationalised as the overt and covert modulation of emotions for the purpose of altering their intensity and duration (Gross and Thompson, 2011). In BD, current research has had a heavy focus on emotion regulation as either a component of implicit emotion processing (see Phillips et al., 2008), volitional cognitive control over goal directed action (i.e., impulse/inhibitory control: Kerr et al., 2005; Peluso et al., 2007), or explicit antecedent-focused (i.e., attentional deployment or appraisal based)

cognitive strategies including rumination or reappraisal (see Green et al., 2011; Rowland et al., 2013b). Evidence in this regard suggests that in comparison to healthy individuals, patients with BD have poor suppression of emotion related neural hyperactivity, heightened impulsivity in emotionally arousing situations, poor reappraisal capacity and a tendency to rely more heavily on negative attentional strategies, including rumination and catastrophizing, to regulate mood (see also Van der Gucht et al., 2009; Gruber et al., 2011; Ghaznavi and Deckersbach, 2012; Wolkenstein et al., 2014). Paradoxically, although these latter strategies are intended to reduce emotional distress, there is evidence that they increase distress instead (Gratz and Roemer, 2004; Gratz and Tull, 2010).

An alternative approach to the study of emotion regulation in BD follows a recognised clinical conceptualisation that emphasises the functional importance of the capacity to be aware of and accepting of emotions, and to appropriately differentiate between the full range of emotions and their associated somatic sensations (Cole et al., 1994; Gratz and Tull, 2010). From this perspective, adaptive emotion regulation may also involve attempts to modify emotions to control behaviours, so long as this is not done with the intention of eliminating or avoiding emotions themselves (Cole et al., 1994; Gratz and Roemer, 2004; Mennin and Fresco, 2009; Gratz and Tull, 2010). Indeed, the ability to control impulsive behaviours and engage in goal directed behaviours when distressed, as well as the ability to acknowledge, accept, monitor, and evaluate negative and positive

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emotions in a manner that highlights both of these affective states as functional, may be important in maintaining healthy emotional equilibrium. This is plausible, given that deficits in these latter response tendencies have been implicated in reduced resilience for coping with stress, heightened vulnerability to depressive symptoms, neuroticism, rumination and anxiety disorders, all of which are associated with BD (Salovey et al., 1995; Gohm and Clore, 2002; Tull and Roemer, 2007; Flynn and Rudolph, 2010).

Surprisingly, there are few studies that have investigated emotion regulation in BD from a perspective that emphasises this functionality of emotions. That is, relative to research examining the cognitive strategies that mood-disordered patients use to *control or eliminate emotions* (i.e., research that references impulse control, goal directed selective attention or use of appraisal-based strategies), there is a comparative lack of research examining emotional functioning in the context of adaptive *responses* to environmental challenges that occur subsequent to the generation of an emotion (i.e., research that references emotional clarity, awareness or acceptance). As a result, existing psychological therapies tend to focus on remediating the underlying cognitive mechanisms that support appraisal based emotional coping, but these therapies may not be comprehensive enough to successfully improve and sustain emotional outcomes for patients with the disorder.

The few preliminary studies that have investigated isolated aspects of the functional response-tendency focussed emotion regulation approach in relation to BD have used measures that separately assesses either emotional clarity (Stange et al., 2013) or acceptance (in addition to antecedent-focussed regulation strategies: Green et al., 2011; Rowland et al., 2013a, 2013b), with indications of impairment in the former but not the latter. While these preliminary studies have provided useful information about these individual aspects of emotion regulation in clinical BD and individuals at high risk for the disorder, a better characterisation of the extent to which BD patients employ a broad range of emotion relevant response tendencies is needed to establish additional targets for the development and/or improvement of interventions for its treatment (Hill and Updegraff, 2012).

Hence, the purpose of the present study was to provide an investigation of emotion regulation in BD, using a clinically-relevant measure designed to provide an integrative assessment of its many dimensions. Specifically, an aim of this study was to characterise the emotion regulation profile of BD patients by comparing them to controls on a multifaceted measure called the *Difficulties in Emotion Regulation Scale*, which not only incorporates the assessment of traditional control-related components of emotion regulation, but also highlights the functionality of emotions in its conceptualisation of emotion regulation (DERS; Gratz and Roemer, 2004).

The DERS offers an assessment tool with the capacity to capture a range of emotion regulation difficulties in a single measure. It defines emotion regulation as involving six core dimensions; (1) the tendency to be aware and acknowledging of one's emotions (Awareness dimension), (2) the tendency to be accepting of one's distressing emotional states (Non-acceptance dimension), (3) the ability to control impulsive behaviours (Impulse dimension) and (4) to maintain goal focussed behaviours when experiencing negative effect (Goals dimension), (5) the ability to access appropriate and adaptive emotion regulation strategies to modulate emotional responses (Strategies dimension), and (6) the ability to distinguish among emotion states and be clear of one's emotions (Clarity dimension).

The DERS is an easily administered measure with utility in both clinical and research settings (Tull and Roemer, 2007; Gratz and Tull, 2010). In particular, its incorporation of items addressing difficulties in adaptive, response-focussed emotion regulation enables the characterisation of emotion regulation tendencies that are particularly amenable to change using mindfulness/acceptance based therapies (Gratz

and Gunderson, 2006; Gratz and Tull, 2010). Such therapies emphasise the importance of emotional awareness and acceptance of distressing emotional thoughts and feelings, with an aim to counter typical maladaptive control-focussed strategies such as rumination (Gratz and Roemer, 2004; Deckersbach et al., 2012; Gilbert and Gruber, 2014).

Despite the potential of the DERS for identifying clinically relevant difficulties in emotion regulation in BD, we are aware of only one recent study that has examined it in a BD population (Becerra et al., 2013). The authors of this study reported omnibus group differences across the six dimensions, such that in comparison to controls, euthymic patients with BD reported greater difficulties in regulating emotions overall. This effect was largely driven by the increased patient related endorsement of items on all but the Awareness dimension of the DERS. Importantly, this work made a first step toward characterising emotion regulation difficulties in BD using a measure with clinical utility and practicality. It is nonetheless preliminary, and further research is needed to establish whether these results replicate.

Further work is also needed to elucidate the extent to which the range of emotion regulation difficulties captured by the DERS is predictive of the propensity for manic and depressive symptomatology in the disorder, over and above clinical variables. This would certainly seem important given the conceivable clinical significance that impairments in emotion regulation may have for predicting episodic relapse. Hence the focus of the current investigation was two fold in nature; firstly, to further establish the utility of the DERS for characterising emotion regulation difficulties in BD, we aimed to examine whether the pattern of findings reported by Becerra et al. (2013) was replicable in another BD cohort (Aim 1). Secondly, we aimed to examine the predictive validity of the DERS for explaining variance in the propensity for trait mania and depression in BD. In particular, we were interested in determining whether any specific dimensions of emotion regulation as measured by the DERS, truly relate to mania or depression propensity beyond clinical features (Aim 2). On the basis of recent findings, we hypothesised that patients with BD would report higher scores on the DERS, and thus, would demonstrate greater difficulties in regulating emotions. Given the lack of research using the DERS for the purpose of establishing its utility for predicting mania and depression propensity, no specific hypotheses for this aim were made.

## 2. Methods

This study was approved by the Human Ethics Review Boards of an Australian Hospital and University, and abided by the Declaration of Helsinki. Written informed consent was obtained from each participant before the study began.

### 2.1. Participants

The clinical sample comprised 50 patients (17 male, 33 female) diagnosed as having DSM-IV-TR BD (BD I  $n=38$ , BD II  $n=12$ ) using the Mini International Neuropsychiatric Interview (MINI; Sheehan et al., 1998). Patients were recruited via community support groups and general advertisements and were all out-patients. Current symptomatology was assessed using the Young Mania Rating Scale (YMRS; Young et al., 1978) and the Montgomery Asberg Depression Rating Scale (MADRS; Montgomery and Asberg, 1979); there were 33 symptomatic patients (defined as those that met criteria for YMRS and/or MADRS scores  $> 8$ , breakdown: depressed  $n=17$ , hypomanic/mixed  $n=16$ ) and 17 euthymic patients (defined as those that met strict criteria for YMRS and MADRS scores  $\leq 8$ ). Patients with visual impairments, neurological disorder and/or a history of substance/alcohol abuse or dependence during the past six months were excluded. Thirty three patients were taking antipsychotics, 16 were taking antidepressants, 16 were taking mood stabilisers and 10 were taking benzodiazepines.

A control sample of 52 healthy participants (20 male, 32 female) was recruited for comparison purposes by general advertisement and contacts of the authors. The MINI screen indicated that no control participant had a current diagnosis or previous history of psychiatric illness (Axis I). Participants were excluded from the control group based on an immediate family history of mood and psychiatric disorder, in addition to a personal history of neurological disorder, current or

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