



Emotion regulation predicts symptoms of depression over five years



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ARTICLE INFO

Article history:

Received 8 February 2013

Received in revised form

14 February 2014

Accepted 11 March 2014

Available online 26 March 2014

Keywords:

Emotion regulation

Depression

Risk factors

Skills

Prospective study

ABSTRACT

Deficits in emotion regulation have been identified as an important risk and maintaining factor for depression. The aim of this study was to examine the long-term effects of emotion regulation on symptoms of depression. Moreover, we investigated which specific emotion regulation skills were associated with subsequent symptoms of depression. Participants were 116 individuals (78% women, average age 35.2 years) who registered for an online-based assessment of depression and its risk-factors and reported at least some symptoms of depression. Successful application of emotion regulation skills and depressive symptom severity were assessed twice over a 5-year period. We utilized cross-lagged panel analyses to assess whether successful skills application would be negatively associated with subsequent depressive symptom severity. Cross-lagged panel analyses identified successful skills application as a significant predictor for depressive symptom severity even when controlling for the effects of initial symptoms of depression. A comparison of the effect sizes for different emotion regulation skills on subsequent depressive symptoms suggests that most of the skills included have similar predictive value. These findings provide preliminary evidence for the hypotheses that deficits in emotion regulation may contribute to the development of depression and that interventions systematically enhancing adaptive emotion regulation skills may help prevent and treat depressive symptoms.

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Major depressive disorder (MDD) is the number one cause of disability and ranks fourth among all medical and psychiatric disorders in disease burden (Murray & Lopez, 1997). It is a highly prevalent (Kessler et al., 2003), usually recurrent (Kupfer, 1991), and potentially chronic problem (Keller et al., 1992). In spite of significant evidence for the efficacy of psychotherapeutic treatments for MDD (e.g., Cuijpers et al., 2013), it is of concern that many patients treated with these interventions fail to attain complete remission (Casacalenda, Perry, & Looper, 2002; Judd et al., 1998), relapse after the treatment is discontinued (Ebert, Tarnowski, Gollwitzer, Sieland & Berking, 2013; Vittengl, Clark, Dunn, & Jarrett, 2007), or even continue to show a chronic course of the disorder (Torpey & Klein, 2008). As a result, contemporary treatments have been estimated to

reduce the disease burden of MDD by 30% at best (Andrews, Issakidis, Sanderson, Corry, & Lapsley, 2004).

In an attempt to improve upon existing interventions, deficits in emotion regulation skills have recently been discussed as a promising target in treatments for depression (Berking & Wupperman, 2012; Greenberg, 2002; Mennin & Farach, 2007). Emotion regulation includes extrinsic and intrinsic processes responsible for monitoring, evaluating, and modifying emotional reactions to accomplish one's goals (Thompson, 1994). The ability to successfully cope with aversive emotions arguably helps maintain a sense of control in distressing situations which is thought to interfere with depressogenic information processing (Teasdale & Barnard, 1993; pp. 212–214). It can also be argued that effective emotion regulation skills help prevent, reduce or shorten the intensity or duration of dysphoric states (Berking, Ebert, Cuijpers & Hofmann, 2013) that have been found to reactivate depressive thinking patterns (Jarrett et al., 2012; Segal et al., 2006) and thus contribute to the (re-) occurrence of depression.

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Consistent with this hypothesis, experimental studies showed that depressed individuals have difficulties utilizing adaptive emotion regulation strategies (Liverant, Brown, Barlow, & Roemer, 2008) and respond to negative mood induction with less effective emotion regulation strategies than non-depressed individuals (Ehring, Tuschen-Caffier, Schnuelle, Fischer, & Gross, 2010). Additionally, findings from affective neuroscience indicate that MDD is associated with abnormal activation patterns in brain areas thought to be involved in effective emotion regulation (e.g., Farb, Anderson, Bloch, & Segal, 2011; Koenigs & Grafman, 2009; Ritchey, Dolcos, Eddington, Strauman, & Cabeza, 2011). Moreover, cross-sectional self-report studies suggest that symptom severity is associated with difficulties in identifying emotions (Honkalampi, Saarinen, Hintikka, Virtanen, & Viinamaki, 1999; Rude & McCarthy, 2003), being self-soothing when experiencing negative emotions (Berking et al., 2011; Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006), accepting and tolerating negative emotions (Brody, Haaga, Kirk, & Solomon, 1999; Campbell-Sills, Barlow, Brown, & Hofmann, 2006; Conway, Csanik, Holm, & Blake, 2000; Hayes et al., 2004; Leahy, 2002), and adaptively modifying emotions (Catanzaro, Wasch, Kirsch, & Mearns, 2000; Kassel, Bornovalova, & Mehta, 2007).

Longitudinal studies suggest that deficits in emotion regulation predict subsequent severity of depressive symptoms. For example, studies using ecological momentary assessment demonstrated that negative affect cued by aversive life events persisted longer in individuals meeting criteria for MDD than in a nonclinical sample (Peeters, Nicolson, Berkhof, Delespaul, & de Vries, 2003). Accordingly, affective reactivity to daily interpersonal stressors was identified as a predictor of symptom severity in a college student sample (O'Neill, Cohen, Tolpin, & Gunthert, 2004). Moreover, the inability to stabilize one's mood in aversive circumstances predicted less success in subsequent cognitive behavioral therapy for MDD in a clinical sample (Backenstrass et al., 2006; Cohen, Gunthert, Butler, O'Neill, & Tolpin, 2005). In addition, expectations of one's ability to successfully cope with stress and negative affect have been shown to predict subsequent depressive symptomatology over an 8-week interval in a sample of college students (Kassel et al., 2007). In contrast, in another prospective study, cross-lagged panel analyses indicated that successful skill application was significantly associated with subsequent positive affect, negative affect, and anxiety within a 2-week interval. However, there was only a statistical trend for the cross-lagged effects of emotion regulation on subsequent depressive symptom severity (Berking, Orth, Wuppermann, Meier, & Casper, 2008). Similarly, in a study with adolescents Hatzenbuehler, McLaughlin, and Nolen-Hoeksema (2008) found that emotion regulation deficits predicted various aspects of mental health (anxiety symptoms, aggressive behavior, and eating pathology) but not depressive symptoms over a 7-month interval. Thus, further research is needed to clarify prospective associations between emotion regulation deficits and depression.

It is also of note that various emotion regulation skills are assumed to differ with regard to their relevance to mental health. For example, cognitive reappraisal has been found to be positively associated with indicators of health and well-being, whereas expressive suppression was found to be negatively related to health and well-being (Gross & John, 2003). Likewise, Berking, Wupperman et al. (2008) found that changes in modification, acceptance and tolerance of emotions during treatment had a unique contribution to the treatment's effects on depression in a heterogeneous sample of inpatients, whereas changes in skills such as being able to be aware of, label, and understand negative emotions had not. However, little is known about the long-term effects of specific emotion regulation skills on depressive symptoms.

The present study aims to extend the current literature by clarifying long-term effects of emotion regulation skills on subsequent depressive symptoms. More specifically, we tested the hypothesis that successful emotion regulation skills application would negatively predict subsequent depressive symptoms in individuals suffering from at least some symptoms of depression over a 5-year period. In addition, we explored whether specific emotion regulation skills would differ with regard to their negative predictive value of subsequent depressive symptom severity.

Method

Participants and procedures

Participants were recruited through an article on putative causes and effective treatments of depression, which appeared in a depression-focused issue of a popular German health magazine ("Stern – Gesundheit"). Readers of the journal who felt that depression is a personally relevant subject were invited to participate in an online survey, which would provide them with feedback on depressive symptom severity as well as likely risk and protective factors. Baseline assessment took place between March and May 2005 and was completed by 635 participants who all consented to be contacted for future research. Associations between emotion regulation and subsequent indicators of mental health in this sample over a 2-week time period were reported elsewhere (Berking, Orth et al., 2008). Five years after the baseline assessment, all participants of the initial sample were invited via e-mail to participate in a long-term follow-up study investigating the association between emotion regulation and mental health. We received automatic e-mail responses from 126 baseline participants that the e-mail address used in the invitation was unknown. Of the remaining 509 former participants, 135 registered for the 5-year follow-up assessment and 131 completed both the measure of emotion regulation skills application and the measure of depressive symptom severity (see Measures). Finally, we included participants in the analysis who reported sum scores of at least one standard deviation ($SD = .77$) on the depression measure completed at Time 1 (see Measures). Thus, all 116 participants of the final sample can be assumed to suffer from at least some depressive symptoms. The majority of participants were female (78%), with an average age of 35.2 years ($SD = 10.27$; range = 19–65 years). Among all participants, 77.6% had received a high school degree as the highest achieved level of education, 84% reported living in Germany, 12% in Switzerland, 1% in Austria, and 3% in other countries. The sample represented an exclusively white population.

Consenting participants were provided with a link and a password, which they could use to log into a website that presented individual computerized feedback of the participant's level of depression, risk factors for the development of depression (i.e., negative mood, higher levels of anxiety), and protective factors that impede the development of depression (i.e., positive mood, effective emotion-regulation skills). In addition, the feedback contained information on the individual's scores in comparison with a reference population, the development of the assessed variables over time, and educational information about the key constructs of the study (including information on diagnostic and treatment possibilities).

Potential participants accessed the study at a non-commercial, advertisement-free website that was hosted on a server at the University of Bern. Connections to this web page and data stored on the server were protected from unauthorized access. Code names and passwords were used to secure confidentiality. Demographic characteristics of the participants (e.g., age, gender, education, country) were assessed before participants were presented with

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