



Mindfulness facets distinctively predict depressive symptoms after two years: The mediating role of rumination



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ABSTRACT

Despite promising theory and numerous intervention studies, longitudinal explorations of the protective properties of mindful disposition with respect to psychopathology are still scarce. The present study tested the theorized protective role of mindfulness facets with respect to depressive symptoms and rumination over time in a non-clinical sample ($N = 41$; 22 females; age = 24.4 (4.8), range = 19–40 years). The longitudinal design involved two assessment time points, with a span of almost 2 years (mean = 20.7 (2.8), range = 16–27 months). At both time points participants completed questionnaires assessing trait mindfulness (FFMQ), trait rumination (RRS), and depressive symptoms (CES-D). Results documented the prospective protective function of *nonjudge* (a non-evaluative stance toward thoughts and feelings) at Time 1, above and beyond the other four facets with respect to depressive symptoms and rumination at Time 2. Depressive rumination fully mediated the impact of *nonjudge* at Time 1 on depressive symptoms at Time 2. Findings suggest that non-judging skills play a critical role in the improved wellbeing associated with mindfulness training.

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1. Introduction

Mindfulness has been defined as “the awareness that arises through intentionally attending in an open, accepting, and discerning way to whatever is arising in the present moment” (Shapiro, 2009, p. 556), and it can be developed by meditation practices derived from Buddhist tradition. A growing body of literature points to the benefits of mindfulness-based interventions in the promotion of psychological health (Khouri et al., 2013), particularly the treatment of disorders like recurrent depression (Kuyken et al., 2008). Several mechanisms through which mindfulness training affects positive change have been proposed, the most plausible being fundamental changes in relationship to experience, which in turn lead to enhanced self-regulation, cognitive and behavioral flexibility, and exposure (e.g., Carmody, Baer, Lykins, & Olendzki, 2009).

As a trait, mindfulness has been conceptualized as a multifaceted disposition that, at its core, is characterized by nonjudgmental awareness of the present moment experience: it can be defined both at an attentional (awareness of the present moment, which impacts the allocation of attentional resources; Bostanov, Keune, Kotchoubey, & Hautzinger, 2012) and at an interpretative level (nonjudgmental and with acceptance; Bishop et al., 2004). Although mindfulness meditation training may lead to increased dispositional mindfulness, evidence suggests that state and trait mindfulness are distinct constructs worthy

of independent examination (Thompson & Waltz, 2007). Despite potential problems of assessing mindfulness with self-report measures (e.g., Grossman, 2008), several instruments have been specifically designed to capture the multiple components of this construct. One of the most largely used questionnaire is the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietemeyer, & Toney, 2006), which operationalized mindfulness as a set of five integrated skills: *observing* internal and external experiences such as sensations, cognitions, emotions, sounds, and smells; *describing* internal experiences with words; *acting with awareness* instead of behaving mechanically while attention is focused elsewhere; *non-judging* and taking a non-evaluative stance toward the inner experience; *non-reacting* to inner experience and allowing thoughts and feelings to come and go (Baer et al., 2006, 2008). Several studies have investigated the relationship between mindfulness components and mental health outcomes in clinical and non-clinical samples and experienced meditators (Baer et al., 2006, 2008; Curtiss & Klemanski, 2014; de Bruin, Topper, Muskens, Bögels, & Kamphuis, 2012). In samples of meditators, findings generally confirmed that all the facets correlate positively with adaptive characteristics (e.g., openness to experience, emotional intelligence) and negatively with maladaptive variables and negative outcomes (e.g., thought suppression, experiential avoidance, depression). However, different results have been obtained in samples of healthy non-meditators and clinical subjects. In these populations, the “observe” facet tends to be *positively* related to maladaptive variables, supporting the notion of mindfulness as a multifaceted construct whose structure alters in the context of meditation expertise or psychopathology (Curtiss & Klemanski, 2014). Few studies have examined the protective

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function of the five facets with respect to relevant clinical symptoms over a wider span of time. Moreover, in comparison to the relatively large body of research examining levels of mindfulness and mental health outcomes following interventions (Baer, 2003; Hofmann, Sawyer, Witt, & Oh, 2010), there is little research that explores the impact of the different components of dispositional mindfulness in non-treatment seeking samples. A few exceptions are worth noting.

Barnes and Lynn (2010) assessed college students' mindfulness skills and depressive symptoms early in the semester and during mid-terms and finals. Act with awareness, nonreactivity, and nonjudge were inversely related to depressive symptoms over the course of the semester, while observe was positively related to depressive symptoms. Describe failed to show any significant relation to depressive symptoms during the semester. In another longitudinal study, Oliver, McLachlan, Jose, and Peters (2012) examined the role of the different facets of dispositional mindfulness and their interaction with negative schemas, as potential predictors of delusional ideation assessed after 6 months. Only the 'accept without judgment' subscale was a significant predictor of delusional ideation, showing how not all the components of the mindful disposition exert the same positive impact on distal psychopathological outcomes. In fact, mechanisms by which mindfulness leads to beneficial outcomes still need to be fully clarified (Baer et al., 2008), and longitudinal analyses of complex constructs at the facet level are essential for clarifying their causal relationships with other variables (Sugiura & Sugiura, 2014). The present study aimed to extend previous research on the five factors of mindfulness disposition by examining their longitudinal relationship with symptoms of depression and rumination.

In all the above-mentioned longitudinal studies the longest span of time taken into account was one year: here, we extended the time frame to almost two years. We are not aware of any other study that has investigated this multi-facet construct across a similar period of time.

In addition to depressive symptoms, rumination was also chosen as an outcome variable. Rumination has been considered an important factor in depression (Nolen-Hoeksema, Wisco, & Lyubomirsky, 2008). It remains elevated in depressed individuals even after depression treatment (Watkins et al., 2007), and it is associated with longer and more severe periods of depressive mood (Nolen-Hoeksema, Morrow, & Fredrickson, 1993). More importantly, research has clearly established an inverse relation between mindfulness and rumination. Individuals with high dispositional mindfulness show low scores on measures of rumination (Keune, Bostanov, Kotchoubey, & Hautzinger, 2012; Williams, 2008), and mindfulness training enhances trait mindfulness and attenuates rumination, suggesting that the two are negatively associated in a dynamic fashion (Keune, Bostanov, Hautzinger, & Kotchoubey, 2011). However, the impact of the several components of trait mindfulness on rumination has been scarcely explored longitudinally, especially over a longer time period. This is relevant missing information, considering that training in mindfulness is supposed to reduce the risk of depressive relapse through the decrease of ruminative thinking (Williams & Kuyken, 2012). Moreover, post-treatment levels of rumination after a MBCT course were found to predict risk of relapse of major depressive disorder in the 12-month follow-up, after controlling for number of previous episodes and residual depressive symptoms (Michalak, Hölz, & Teismann, 2011). We also examined whether rumination mediates the relation between mindfulness skills and depressive symptoms. Prior cross-sectional investigations have already shown this link (Alleva, Roelofs, Voncken, Meevissen, & Albers, 2014), but a longitudinal investigation was needed to clarify directionality of this relationship.

2. Methods

2.1. Participants

University students and employees were invited to participate in a longitudinal study on "what happens in your body when your mind

wanders." Of the 50 subjects who agreed to participate in the study, 9 did not complete the follow-up at Time 2. Subjects who did not complete the follow-up did not differ from those who did for any relevant variable of the study. The final sample was composed of 19 men (mean age = 25.3 (4.3) years) and 22 women (mean age = 23.7 (5.2) years). All subjects were Caucasian. Exclusionary criteria, assessed during a pre-screening questionnaire, were: self-reported current or past diagnosis of psychiatric disorder or serious medical illness, obesity (body mass index > 32 kg/m²), menopause, use of oral contraceptives during the previous 6 months, and pregnancy or childbirth within the last 12 months. Participants were compensated (200 Euros) for their time. The protocol was approved by the Bioethical Committee of S. Lucia Foundation, Rome, Italy.

2.2. Procedure

The study consisted of three phases: a laboratory session at Time 0 and two identical ambulatory sessions at Time 1 and Time 2. Given the aims of the present work and due to the lack of mindfulness measures at Time 0, here we will consider only self-report measures at Time 1 and Time 2. The average time between the two sessions was 20.7 (SD: 2.75; range 16–27) months.

The laboratory and ambulatory sessions were also characterized by physiological, thought, and mood assessments but these data have been described elsewhere and will not be considered here (Ottaviani & Couyoumdjian, 2013; Ottaviani, Shapiro, & Couyoumdjian, 2013; Ottaviani, Medea, Lonigro, Tarvainen, & Couyoumdjian, 2015).

Participants were consented at the beginning of each session. At the end of each session, they completed a series of online dispositional questionnaires, were debriefed, and received monetary compensation.

2.3. Questionnaires

At Time 1, participants completed online a series of socio-demographic (age, sex, years of education) and dispositional scales: a) Mindfulness Questionnaire (FFMQ; Baer et al., 2006), b) Center for Epidemiologic Studies Depression Scale (CES-D; Radloff, 1977), and c) Ruminative Response Scale (RRS; Nolen-Hoeksema & Morrow, 1991).

The FFMQ assesses five facets of a general tendency to be mindful in daily life (observe, describe, act with awareness, nonreactivity, and nonjudge) rated on a 5-point Likert scale ranging from 1 (never or very rarely true) to 5 (very often or always true). Cronbach's alpha coefficients at Time 1 and Time 2 are reported in Appendix A.

The CES-D is a 20-item self-report scale that assesses the frequency of occurrence of symptoms of depression during the past week. Total score ranges from 0 to 60. Standard cut-offs are > 16 for mild depression and > 23 for clinical depression. Cronbach's alpha was .86 in the present study.

The RRS assesses depressive rumination measured by how often people engage in responses to depressed mood that are self-focused (I think "Why do I react this way?"), symptom-focused (I think about how hard it is to concentrate), and focused on the possible consequences and causes of one's mood (I think "I won't be able to do my job if I don't snap out of this"). Cronbach's alpha was .91 in the present study.

2.4. Statistical analyses

Data are expressed as means (SD). Data analysis was performed with SPSS Statistics 21.0 (IBM, 2012). To identify potential covariates to include in subsequent analyses, differences due to sex were analyzed by Bonferroni corrected *t*-test, and Pearson correlations coefficients were computed between the socio-demographic variables (age and years of education) and the dependent variables (CES-D and RRS at Time 2). To control for the effects of socio-demographic variables, only

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