

EMOTION DYSREGULATION MEDIATES THE RELATION BETWEEN MINDFULNESS AND REJECTION SENSITIVITY

Patrizia Velotti¹, Carlo Garofalo² & Fabiola Bizzi¹

¹Department of Educational Sciences, University of Genoa, Genoa, Italy

²Department of Dynamic and Clinical Psychology, Sapienza University of Rome, Rome, Italy

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SUMMARY

Background: The role of rejection sensitivity (RS; the tendency to anxiously expect, readily perceive, and overreact to implied or overt interpersonal rejection) in psychopathology has mainly been studied with regard to borderline personality disorder (BPD). In the present study, we first sought to extend previous evidence of heightened RS in a clinical group with psychiatric disorders other than BPD, when compared with a community sample. Then, we tested whether emotion dysregulation and mindfulness were associated with RS in both sample, further hypothesizing that emotion dysregulation would mediate the relation between mindfulness deficits and RS.

Subjects and methods: We adopted a cross-sectional design involving 191 psychiatric patients and 277 community participants (total N=468). All participants completed the Rejection Sensitivity Questionnaire, the Five Facet Mindfulness Questionnaire, and the Difficulties in Emotion Regulation Scale.

Results: Our hypotheses were supported, with psychiatric patients reporting greater levels of rejection sensitivity and emotion dysregulation, and lower level of mindfulness. Mindfulness deficits and emotion dysregulation explained a significant amount of variance in RS, in both samples. Finally, bootstrap analyses revealed that mindfulness deficits played an indirect effect on RS through the mediating role of emotion dysregulation. In particular, two different patterns emerged. Among psychiatric patients, an impairment in the ability to assume a non-judgmental stance towards own thoughts and feelings was related to RS through the mediation of limited access to emotion regulation strategies. Conversely, in the community sample, overall emotion dysregulation mediated the effect of lack of attention and awareness for present activities and experience on RS.

Conclusions: Longitudinal studies could help in delineating etiological models of RS, and the joint role of deficits in mindfulness and emotion regulation should inform treatment programs.

Key words: rejection sensitivity – mindfulness - emotion dysregulation – psychopathology

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INTRODUCTION

Rejection is a common and potentially distressing human experience. Yet, people vary considerably as to how they react to it. Some individuals respond to rejection with equanimity, remaining calm. Others respond to rejection in ways that undermine their well-being and compromise their interpersonal relationships. Historically, rejection sensitivity (RS) was described as part of the neurotic personality (Horney 1937), and the rejection sensitive person was depicted as one who is extremely afraid and concerned of being rejected. In individuals with heightened RS, also a slight cue of rejection in interpersonal contexts can trigger intense feelings of anxiety or shame, in turn eliciting angry or hostile reactions (Horney 1937, Elison et al. 2014). Rejection sensitive individuals may also become reluctant to express personal opinions, avoiding arguments or controversial debates with others, and may refrain from making request to others in order to avoid negative feedback (Mehrabian 1976). As a result, their social functioning could easily become impaired (Butler et al. 2007, London et al. 2007).

Rejection Sensitivity and Psychopathology

More recently, RS has been conceptualized as a cognitive-affective processing disposition to anxiously expect, readily perceive, and overreact to interpersonal rejection (Downey & Feldman 1996, Romero-Canyas et al. 2010). From a developmental perspective, Downey and Feldman (1996) proposed that a disposition toward RS could originate from early rejection experiences. When highly rejection sensitive individuals encounter cues that they have previously associated with rejection, their anxious expectation for rejection raises. This may challenge their capacity for self-regulation by triggering both processing biases and intense reactions (Downey et al. 1999).

Research has shown that chronic rejection and dispositional RS can have serious long-term negative effects on personality and mental health (London et al. 2007). In particular, high RS is strongly associated with borderline personality disorder (BPD; Bungert et al., 2015; Downey et al. 1997). In particular, RS is associated with borderline features such as interpersonal instability, sensitivity to abandonment, self-destructive and suicidal behavior (Selby et al. 2010, Staebler et al. 2011, Goodman et al. 2014). Positive associations bet-

ween BPD traits and RS have also been observed in non-clinical samples (Berenson et al., 2009, Miano et al. 2013).

Notwithstanding its role in BPD pathology, heightened RS has been also found in other psychiatric disorders. For instance, higher levels of RS were reported for patients with social phobia and avoidant personality disorder (Meyer et al. 2005; Zimmer-Gembeck & Nesdale 2013). Notably, both of these disorders are characterized by extreme social avoidance and interpersonal difficulties. Other scholars found an association between RS and both depression and dependent personality disorder, which share extreme social preoccupation (Ayduk et al. 2001). Finally, RS has also been reported in patients with eating disorders (Wollburg et al. 2012).

In summary, although research on RS has mainly focused on BPD, it seems that high RS could have an impact on other psychiatric disorders, supporting the need for further investigations in clinical context. Interestingly, the majority of studies regarding RS have addressed behavioral and psychopathological outcomes, largely neglecting potential antecedents of RS. In other words, if there is substantial evidence about risks associated with heightened RS, little is known about which mechanisms may underlie and explain individual differences in RS. The only few exceptions (e.g. Butler et al. 2007, London et al. 2007) have focused on the social antecedents of RS, such as social support and peer rejection, whereas the study of individual characteristics or personality traits able to explain the individual proneness to RS are clearly lacking. Two such antecedents might be mindfulness deficits and emotion dysregulation - that will be addressed in the next two paragraphs. First, we reviewed literature in support of a link between emotion dysregulation and RS. Then, we examined studies on the association between mindfulness and emotion dysregulation. Our rationale was that, if lower levels of mindfulness were related to greater emotion dysregulation, and emotion dysregulation was associated with heightened RS, it could be interesting to test whether mindfulness play an indirect effect on RS through the role of emotion dysregulation. A deeper understanding of these mechanisms would inform the application of more targeted and tailored mindfulness-based or emotion regulation-based interventions, as well as advance theory and research in this field (Shapiro et al. 2006, Carmody et al. 2009, Baer et al. 2012, Reid et al. 2014).

Emotion Dysregulation and Rejection Sensitivity

Theoretical and empirical literature suggests that good emotion regulation abilities are associated with greater quality of social interactions (Lopes et al. 2005) and psychological well-being (Balzarotti et al. 2014). On the other hand, difficulties in emotion regulation (i.e., emotion dysregulation) have been reported to underlie diverse symptom presentations including - but

not limited to - generalized anxiety disorder (McLaughlin et al. 2007), alcohol abuse (Garofalo & Velotti 2014), posttraumatic stress symptoms (Tull et al. 2007), BPD (Cheavens et al. 2012) and other personality disorders (Velotti & Garofalo 2015). Emotion dysregulation has also been linked to internalizing and externalizing maladaptive behavior like self-injury (Klonsky 2009), suicide attempts (Zlotnick et al. 1997), chronic anger expression (Robertson et al. 2012) and aggression (Donahue et al. 2014, Velotti et al. 2014a). As a whole, to date emotion dysregulation is considered a transdiagnostic hallmark of psychopathology (Kring & Sloan 2009, Desrosiers et al. 2013, Gratz et al. 2015).

Emotion dysregulation is defined here as a multi-dimensional construct encompassing maladaptive ways of responding to emotional distress, including: a lack of awareness, understanding, and acceptance of emotions; an unwillingness to experience emotional distress as part of pursuing desired goals; difficulties controlling behaviors in the face of emotional distress; and deficits in the modulation of emotional arousal through effective emotion regulation strategies (Gratz & Roemer 2004).

Interestingly, emotion dysregulation could contribute to RS. Indeed, across different samples, all six dimensions of emotion dysregulation mentioned above were related to heightened RS in both clinical (Selby et al. 2010) and offender samples (Velotti et al. 2014b). Specifically, lack of awareness has been associated with RS (Wismeijer et al. 2014). Moreover, a physiological index of emotion regulation (i.e., respiratory sinus arrhythmia) has been associated with RS (Gyurak & Ayduk 2008). Further, emotion dysregulation may deplete the resources required for responding adaptively to interpersonal stressors, thus increasing the likelihood of maladaptive responses to these stressors, as in the case of rejection sensitive individuals (Dixon-Gordon et al. 2013).

Indirect evidence of the proposed link between emotion dysregulation and RS comes from studies investigating the role of attachment styles. Indeed, an anxious attachment style (often associated with emotion dysregulation) was reported as related to RS, and this effect was partially explained by the mediating role of worry, which is actually a maladaptive strategy to regulate emotions (Khoshkam et al. 2012). Finally, intentional attention deployment (i.e., a self-regulation strategy related to the ability to delay gratifications and to refrain from impulsive behavior) was related to RS, although this finding was not confirmed across different samples (Ayduk et al. 2000). As a whole, previous research is controversial regarding the relationship between emotion dysregulation and RS. A possible explanation is that most of the aforementioned studies addressed specific emotion regulation strategy (e.g., attention deployment) or the regulation of specific emotions (e.g., anxiety) rather than focusing on emotion dysregulation more generally.

Mindfulness, Emotion Dysregulation and Rejection Sensitivity

A second possible mechanism underlying RS could be a mindfulness deficit. Mindfulness involves the self-regulation of attention toward, and nonjudgmental awareness of, present moment experiences, including thoughts, emotions, and bodily sensations (Kabat-Zinn 1990, Bishop et al. 2004). Mindfulness is a multifaceted construct, and its components are related to distinct psychological processes, including the ability to: (1) Observe the immediate experience; (2) Describe/label the experience with words; (3) Act with Awareness of personal motives; (4) Have a nonjudgmental stance towards own thoughts and feelings; and (5) Be able to perceive inner experiences, especially if upsetting, without feeling forced to react or being overwhelmed (Baer et al. 2006).

Mindfulness may be conceptualized as a dispositional trait that differs across individuals. It was associated with greater emotion differentiation and less emotion regulation difficulties (Hill & Updegraff 2012, Desrosiers et al. 2013, Luberto et al. 2014). Specific components of mindfulness have been directly linked to emotion regulation. For instance, all the above mentioned dimensions except the ability to “observe” own feelings, were negatively related to emotion dysregulation (Baer et al. 2006, Shapiro et al. 2006, Goodall et al. 2012, Luberto et al. 2014). On the other hand, difficulties in assuming a nonjudgmental attitude and in acting with awareness seemed to be specifically predictive of overall emotion dysregulation problems (Reese et al. 2015) also when controlling for the influence of negative affectivity, anxiety sensitivity, and distress tolerance (Vujanovic et al. 2010).

Given the well-established association between mindfulness deficits and emotion dysregulation (Goodall et al. 2012, Hill & Updegraff 2012, Desrosiers et al. 2013, Reid et al. 2014, Gratz et al. 2015, Reese et al. 2015), in recent years a great emphasis has been placed on the interplay of emotion dysregulation and mindfulness (Luberto et al. 2014, Roemer et al. 2015). For instance, Roemer et al. (2009) showed that emotion dysregulation and mindfulness predicted symptoms of anxiety both independently (i.e., above and beyond the influence of the other) and jointly (i.e., through their shared variance). Furthermore, different aspects of emotion dysregulation were found to mediate the association between mindfulness and both anxiety and depression (Desrosiers et al. 2013). Accordingly, emotion regulation has been described as a mechanism of change in mindfulness-based interventions (McMain et al. 2001, Carmody et al. 2009, Coffey et al. 2010, Gratz & Tull 2010, Wupperman et al. 2012).

However, to our knowledge, limited research has investigated the influence of mindfulness on RS, and whether emotion dysregulation may play a mediating role also in this proposed relation. Nevertheless, since mindfulness was positively related to interpersonal and social well-being (Brown & Ryan 2003, Shapiro et al. 2008), it is likely that mindfulness deficits could be

associated with interpersonal problems, including RS. To the best of our knowledge, the only indirect support for the association between mindfulness and RS comes from a study investigating reactions to social rejection (Heppner et al. 2008). In particular, with an experimental procedure, Heppner et al. (2008) demonstrated that participants who were instructed to be mindful before receiving a social rejection feedback displayed less aggressive behavior (that are characteristic of high RS; Downey & Feldman 1996, Romero-Canyas et al. 2010) than those who were not given the mindful induction task.

In conclusion, if mindfulness deficits are related to emotion dysregulation, which in turn could foster RS, little is known as to whether mindfulness may exert an indirect effect on RS through the mediating role of emotion dysregulation. The fact that each construct is multidimensional further complicates a clear understanding of their interplay (Desrosiers et al. 2013). Clarifying the associations among emotion dysregulation and mindfulness dimensions, as well as the joint role of selected dimensions on RS, seems clinically relevant in order to cast light on putative mechanisms underlying psychopathology, develop more sophisticated etiological models, and improve treatments.

The Current Study

The aim of the current study was to examine the relationship between mindfulness, emotional dysregulation and RS, comparing a clinical and a community sample. We first hypothesized that psychiatric patients would report higher RS, greater emotion dysregulation and lower mindfulness skills. On the basis of the conceptual and empirical work reviewed above, all these aspects (i.e., RS, mindfulness, and emotion dysregulation) are thought to be characteristic of psychopathology transdiagnostically (as opposed to be specifically related to distinct pathologies). Accordingly, we tested our hypotheses recruiting a mixed psychiatric sample. Confirming and extending previous research (Goodall et al. 2012, Hill & Updegraff 2012, Desrosiers et al. 2013, Reese et al. 2015), it was also hypothesized that deficits in mindfulness facets and emotion dysregulation dimensions would be positively related to each other, and associated with RS. A final model including both mindfulness deficits and emotion dysregulation facets was tested in order to shed light on their joint role in explaining variations in RS. In particular, we tested the hypothesis of an indirect effect of mindfulness deficits on RS, through the mediating role of emotion dysregulation.

SUBJECTS AND METHODS

Subjects

The community sample (N=277; 56.3% males) was recruited using a snowball sampling technique, requesting potential volunteers for psychological studies. Community participants' mean age was 39.46 (SD=13.18), without significant differences across gender (t

(243.38^{Endnote 1})=0.376, $p=0.708$). Specific exclusion criteria was any admission to psychiatric facilities occurred in the past. The clinical sample comprised 191 inpatients (59.7% males) recruited from different psychiatric facilities, receiving residential treatments for various psychiatric disorders in a post-acute phase. Psychiatric patients' mean age was 42.75 (SD=12.38), with no significant difference between genders ($t(187)=0.810$, $p=0.419$). Most patients were suffering from schizophrenia (22%) or other psychotic disorders (20.3%). Further, the 13.1% met criteria for a psychotic disorder not otherwise specified, and the 15.5% were diagnosed with personality disorders. Other psychiatric diagnoses were: bipolar disorder (7.9%), depression (7%), drug or alcohol abuse (6.3%), anxiety disorders (6.3%) eating disorders (1.6%). All diagnoses were provided by facilities' senior staff and were reached after several clinical interviews, clinical observations, and staff meetings. All diagnoses were made according to the Diagnostic and Statistical Manual of Mental Disorders' (DSM-IV-TR; American Psychiatric Association 2000) criteria. In order to be eligible for the study, all patients had to be in their inpatient facility for a period ranging from 1 to 12 months and their symptoms had to be in remission. In both samples, all participants were Italian, or living in Italy for at least than 10 years.

All participants were introduced to the study's aims and procedures, and they were informed about their possibility to withdrawn and request the removal of their responses from the database at any time. Participants then provided written informed consent before completing self-report questionnaires in individual or small-group sessions, in the presence of a trained clinical psychologist. Participation was voluntary and data were kept anonymous by replacing the participants' names with an alphanumeric code. All procedures and materials complied with the provisions of the Declaration of Helsinki (1995, as revised in Edinburgh, 2000), and were approved by the Research Ethics Board of the Italian Association of Psychology.

Measures

Rejection sensitivity

Rejection sensitivity was measured using the Rejection Sensitivity Questionnaire – Adult Version (RSQ-A; Berenson et al. 2009), which is based on the original RSQ ideated by Downey and Feldman (1996). The RSQ-A assesses the individual concern about, and anticipation of, interpersonal rejection. It is a self-report measure describing 9 hypothetical relational scenarios in which is possible to experience interpersonal rejection by a significant other (e.g., "You ask your parents or another family member for a loan to help you through a difficult financial time"). Participants are asked to indicate - on a 6-point Likert scale - both the degree of concern they would feel about each scenarios' outcome (e.g., "How concerned or anxious would you be over whether or not your family would want to help you?"; with answers ranging from very unconcerned to

very concerned), and the likelihood they believe the other person would respond positively (as opposed to the rejection option; e.g., "I would expect that they would agree to help as much as they can"; with answers ranging from very unlikely to very likely). Thus, for each situation two items are listed, for a total of 18 items. The items regarding the likelihood of a favorable outcome were reversed-keyed before being multiplied with ratings of concern, to obtain 9 scenarios' scores. Finally, an overall score of RS was computed by averaging scores of all scenarios. Both the RSQ and the RSQ-A have demonstrated good convergent, discriminant, and predictive validity (see Downey and Feldman 1996, Berenson et al. 2009, respectively), and the RSQ-A yielded a Cronbach's alpha of 0.74 (Berenson et al. 2009). The RSQ-A was translated into Italian by two of the authors (C.G., P.V.) and one independent scholar, all fluent in both English and Italian. The Italian translation was iteratively controlled through back-translation by a native English speaker who was blind to the original version, until a consensus was obtained on all items. For the present study, Cronbach's alpha was 0.82.

Emotion dysregulation

The Difficulties in Emotion Regulation Scale (Gratz & Roemer 2004) was used to capture emotion dysregulation across six dimensions: emotional nonacceptance (Nonacceptance; e.g., "When I'm upset, I feel guilty for feeling that way"); lack of emotional clarity (Clarity; e.g., "I am confused about how I feel"); lack of emotional awareness (Awareness; e.g., "I pay attention to how I feel", all items of this scale are reverse-keyed); inability to refrain from impulsive behavior when upset (Impulse; e.g., "When I'm upset, I have difficulty controlling my behaviors"); unwillingness to experience negative emotions as part of pursuing personal goals (Goals; e.g., "When I'm upset, I have difficulty getting work done"); and limited access to effective emotion regulation strategies (Strategies; e.g., "When I'm upset, it takes me a long time to feel better"). The DERS is a self-report questionnaire consisting of 36 items asking participants to rate how often each statement applies to them on a 5-point Likert scale ranging from almost never to almost always. Subscale and total scores (i.e., and index of overall emotion dysregulation) are obtained by summing participants responses, with higher scores indicating greater difficulties in emotion regulation. Both the original (Gratz & Roemer 2004) and the Italian version of the DERS (Giromini et al. 2012) have reported excellent psychometric properties and good reliability and validity. The six-factor structure was confirmed in the Italian adaptation of the DERS, which showed internal consistency coefficients ranging between 0.77 and 0.92 (Giromini et al. 2012). In the present study, the DERS total score had excellent internal consistency ($\alpha=0.94$) and five of the six dimensions showed good internal consistency (i.e., all $\alpha>0.83$), with the only exception of the Awareness subscale, whose Cronbach's alpha was 0.66, in line with

other studies with the Italian version of the DERS (e.g., Velotti & Garofalo 2015), and considered acceptable according to George and Mallery's (2003) benchmarks.

Mindfulness

The self-report Five Facet Mindfulness Questionnaire (FFMQ; Baer et al. 2006) was used to assess the individual tendency to be mindful in the daily life, through five dimensions: attending to internal and external stimuli and associated cognitions and emotions (Observe; e.g., "When I'm walking, I deliberately notice the sensations of my body moving"); being able to describe own experiences (Describe; e.g., "I'm good at finding words to describe my feelings"); paying ongoing attention to present activities and being aware of personal behavior's motives (Act with Awareness; e.g., "When I do things, my mind wanders off and I'm easily distracted", all items of this scale are reverse-keyed); adopting a non-evaluative stance towards own thoughts and feelings, refraining from assuming a critical stance when focusing on inner experiences (Nonjudge; e.g., "I criticize myself for having irrational or inappropriate emotions", all items of this scale are reverse-keyed); and being able to perceive own emotions and thoughts without feeling overwhelmed or forced to react to them, even if distressing (Nonreact; e.g., "I perceive my feelings and emotions without having to react to them"). The FFMQ consists of 39 items rated on a 5-point Likert scale, ranging from never true to always true, with higher total scores corresponding to greater mindfulness abilities. In the Italian validation of the FFMQ (Giovannini et al. 2014), the total and facets scores demonstrated good internal consistency (all Cronbach's α were equal to or greater than 0.74), and the questionnaire confirmed its good reliability and validity, as well as its factor structure, as in the original version (Baer et al. 2006). In the present study, total and subscale scores' Cronbach's alphas ranged from 0.77 to 0.89, with the exception of Nonreact which reported an alpha value of 0.68, in line with the original validation study (Baer et al. 2006).

Statistical Analyses

Skewness and kurtosis were computed in order to confirm the normality of distribution for all study variables. Cronbach's alphas were calculated as an index of internal consistency, and descriptive statistics were calculated for each variable. In order to test whether the two samples were significantly different in terms of age and gender composition, an independent samples t-test and a chi-square test with Yates' Correction for Continuity were conducted, respectively. Pearson's zero-order correlations were performed to test for the effect of age and gender (dummy-coded) on all study variables within both samples, as well as to explore inter-correlations among key variables. Bonferroni procedure was used to correct for the family-wise error rate, calculating the appropriate alpha adjustment with the nominal significance level set to $p < 0.0005$. The homogeneity of correlation coefficients across groups was

tested using the appropriate z statistic (Cohen et al. 2003). Univariate (ANOVA) and multivariate (MANOVA) analyses of variance were carried out to compare the two samples on all study variables, as appropriate. Bonferroni alpha correction was used when exploring group differences on any single dimension (i.e. $p < 0.008$ for the DERS subscales, and $p < 0.01$ for the FFMQ subscales). Before all MANOVAs were conducted, preliminary assumption testing was performed to check for normality, linearity, univariate and multivariate outliers, homogeneity of variance-covariance matrices, and multicollinearity, with no major violations noted. Pillai's Trace was chosen as the most robust test statistic (Tabachnick & Fidell 2001). Partial Eta squared (η^2_{partial}) statistic was used as an estimate of the effect size of the univariate F tests, representing the proportion of the total variability in the dependent variable that is accounted for by variation in the independent variable. Multiple regression analyses were carried out to examine the associations between the six DERS dimensions and the RSQ-A total score, as well as the relationships between the five FFMQ facets and the RSQ-A. These regression analyses were conducted separately for both samples, entering the RSQ-A as the dependent variable and each DERS or FFMQ dimension as independent variables. The nominal significance level (i.e., $p < 0.05$) was corrected according to the Bonferroni procedure and set at $p < 0.008$ for the analyses involving the DERS, and at $p < 0.01$ for those regarding the FFMQ. Cohen f^2 (Cohen 1988) index was computed as effect size measure. The variance inflation factor (VIF) was used to evaluate multicollinearity. Finally, a bootstrapping approach with bias-corrected confidence intervals (Hayes 2009) was used to test the proposed indirect effect of mindfulness on RS through emotion dysregulation. As compared with the traditional Baron and Kenny's (1986) method, bootstrapping is a more powerful (Williams & MacKinnon 2008) non-parametric approach to hypothesis testing, estimating the standard errors empirically using the available data. Bootstrapping involves repeated random resampling observations with replacement from the original data set to test the desired statistic in each resample. The indirect effect model was then estimated on each sample. In the present study, 5000 bootstrap replications were drawn for each mediation analysis and 95% confidence intervals (CI) were computed for the indirect effect. Point estimates report the mean over the number of bootstrapped samples and, if zero is not included in the resulting CIs of the bootstrapping method, it is confidently possible to conclude that the indirect effect is significant. An SPSS Macro (i.e., PROCESS; Hayes 2013) was used to perform bootstrap analyses. For both the FFMQ and the DERS, only those dimensions resulted significantly related to the RSQ-A in the regression analyses were used to test the hypothesized indirect effect. Throughout all analyses, missing data were treated by prorating scale scores and, if more than 20% of the items were missing, by excluding cases pairwise.

RESULTS

Skewness and kurtosis values smaller than 3 in absolute value indicated that all variables were reasonably normally distributed and parametric analyses could be performed (Tabachnick & Fidell 2001). The two samples were significantly different in terms of age ($t(420.058)=2.742$, $p<0.05$), but age was not significantly related with any study variables at the bivariate level (all $ps=ns$, with the nominal significance level set to 0.0005 according to the Bonferroni procedure). Thus age was not used as a covariate in the subsequent analyses. The only exception regarded a significant, negative correlation with the Clarity subscale of the DERS in the community sample ($r=-0.229$, $p<0.0005$), thus particular attention was paid to the possible group

difference regarding this scale. Furthermore, the two samples were not significantly different in their gender composition, $\chi^2(1, N=468)=0.397$, $p=0.53$. However, gender was correlated with three study variables, although only in the community sample. Indeed, in this sample, men scored higher than women on the Awareness subscale of the DERS, and lower than women on the Observe scale of the FFMQ, as well as on the Strategies subscale of the DERS (all $ps < 0.0005$, after Bonferroni correction was computed). Accordingly, gender was used as a covariate in subsequent analyses involving the community sample, by entering gender in the first step of each hierarchical multiple regression analysis. Table 1 shows descriptive statistics for all study variables, whereas inter-correlations among all dimensions considered are detailed in Table 2.

Table 1. Means, Standard Deviations (SD) and group comparison for all study variables

	Clinical sample Mean (SD)	Community sample Mean (SD)	<i>F</i>	η^2_{partial}
RSQ-A total score	9.28 (4.80)	6.76 (3.60)	36.639**	0.08
DERS Nonacceptance	18.03 (6.80)	11.98 (4.33)	133.727**	0.23
DERS Goals	16.13 (5.32)	12.55 (4.50)	62.833**	0.12
DERS Impulse	15.25 (6.37)	10.67 (4.01)	90.079**	0.17
DERS Awareness	14.00 (4.76)	13.91 (3.86)		
DERS Strategies	21.67 (8.64)	14.65 (5.35)	114.573**	0.20
DERS Clarity	11.64 (4.84)	9.23 (3.73)	37.014**	0.08
FFMQ Observe	24.83 (6.49)	22.23 (5.86)	19.916**	0.04
FFMQ Describe	26.10 (6.34)	28.42 (5.84)	14.898**	0.03
FFMQ Act with Awareness	27.57 (7.41)	31.36 (5.99)	33.756**	0.07
FFMQ Nonjudge	24.91 (7.68)	30.12 (5.22)	71.018**	0.14
FFMQ Nonreact	20.51 (5.10)	20.19 (4.28)		

Note: RSQ-A= Rejection Sensitivity Questionnaire–Adult version (higher scores mean greater rejection sensitivity); DERS= Difficulties in Emotion Regulation Scale (higher scores mean greater difficulties in emotion regulation); FFMQ= Five Facet Mindfulness Questionnaire (higher scores mean greater mindfulness skills). *F* tests based on one-way ANOVAs. Degrees of Freedom were: 1, 309.306 for the analysis involving the RSQ-A (Welch’s robust test for equality of means was used since Levene’s test for homogeneity of variances revealed that homoscedasticity could not be assumed); 1, 456 for analyses involving the DERS; and 1, 433 for analyses involving the FFMQ. Bonferroni-adjusted *p* values were $p=0.008$ for the DERS subscales, and $p=0.01$ for the FFMQ subscales. For ease of presentation, only significant *F*s are reported. Significantly higher mean values are in boldface; ** $p<0.001$

Table 2. Intercorrelations among study variables for the clinical sample (N= 191; above the diagonal) and the community sample (N= 277; below the diagonal)

	1	2	3	4	5	6	7	8	9	10	11	12
1. RSQ-A total score	-	0.35	0.35	0.30	0.15	0.38	0.35	0.10	-0.29	-0.30	-0.41	-0.13
2. DERS Nonacceptance	0.33	-	0.67	0.65	0.04	0.80	0.52	0.13	-0.38	-0.55 ^a	-0.60 ^a	-0.11
3. DERS Goals	0.22	0.42	-	0.68	-0.06	0.73	0.44	0.13	-0.30	-0.60 ^a	-0.60 ^a	-0.06
4. DERS Impulse	0.33	0.49	0.54	-	0.01	0.78	0.49	0.18	-0.31	-0.58	-0.60 ^a	-0.13
5. DERS Awareness	0.16	0.04	-0.07	0.12	-	0.04	0.36	-0.35	-0.34	-0.07	-0.02	-0.22
6. DERS Strategies	0.43	0.63	0.54	0.64	0.05	-	0.57	0.12	0.40	-0.64 ^a	-0.65 ^a	-0.11
7. DERS Clarity	0.28	0.38	0.21	0.41	0.36	0.46	-	0.04	-0.51 ^a	-0.50	-0.44	-0.19
8. FFMQ Observe	-0.01	0.08	0.09	0.04	-0.33	0.20	0.05	-	0.30	-0.19	-0.41	0.44
9. FFMQ Describe	-0.26	-0.27	-0.20	-0.31	-0.43	-0.31	-0.35 ^a	0.32	-	0.44	0.34	0.38
10. FFMQ Act with Awareness	-0.32	-0.39 ^a	-0.45 ^a	-0.47	-0.02	-0.49 ^a	-0.35	-0.20	0.36	-	0.72	-0.07
11. FFMQ Nonjudge	-0.27	-0.52	-0.37 ^a	-0.41 ^a	-0.01	-0.48 ^a	-0.32	-0.29	0.18	0.53	-	-0.21
12. FFMQ Nonreact	-0.11	-0.01	-0.04	-0.10	-0.36	-0.07	-0.15	0.46	0.39	-0.11	-0.15	-

Note: RSQ-A= Rejection Sensitivity Questionnaire - Adult version (higher scores mean greater rejection sensitivity); DERS= Difficulties in Emotion Regulation Scale (higher scores mean greater difficulties in emotion regulation); FFMQ= Five Facet Mindfulness Questionnaire (higher scores mean greater mindfulness skills). Bolded correlation coefficients (two-tailed Pearson’s *r*) are significant at Bonferroni-corrected nominal significance level (i.e., $p<0.0005$); ^a Significant difference in correlation coefficient between the two groups (stronger in the clinical sample): min $z=2.08$ ($p<0.05$), max $z=3.22$ ($p<0.01$)

Although the nominal significance level was adjusted adopting a conservative method (Perneger 1998), significant correlations emerged in the expected directions in both samples. Rejection sensitivity was positively related with most aspects of emotion dysregulation, and negatively with mindfulness abilities. Similarly, dimensions of emotion dysregulation and mindfulness skills were negatively related. Some exceptions are worth noting and regarded the Awareness^{Endnote 2} dimension of the DERS, as well as the Observe and Nonreact scales of the FFMQ, thus strengthening the rationale of using scale scores instead of total scores in subsequent analyses (similar findings were reported in the validation studies of these scales; see Gratz & Roemer 2004, Baer et al. 2006, Giromini et al. 2012, Giovannini et al. 2014). Homogeneity tests did not evidence significant differences in correlation coefficient values involving the RSQ-A between the two groups ($z=0.21$, max $z=1.68$, all $ps>0.05$). On the contrary, when testing for homogeneity of correlations among DERS dimensions and FFMQ subscales, several significant differences emerged across groups (see Table 2). In all cases, the strength of the association between any DERS dimension and correspondent FFMQ facet was greater in the clinical sample.

In line with expectations, one-way between-groups ANOVA (Table 1) showed that there was a statistically significant difference in RSQ-A total score between the community and clinical samples. Inspection of groups' means (see Table 1) showed that the clinical sample scored higher than community participants with a medium effect size, according to Cohen's (1988) benchmarks^{Endnote 3}.

A one-way between-groups multivariate analysis of variance (MANOVA) was then performed to explore group differences in overall emotion dysregulation and mindfulness, separately. As for emotion dysregulation, the six DERS dimensions were entered as dependent variables, with group as fixed factor. As expected, there was a statistically significant difference between community and clinical participants on the combined dependent variables (i.e., overall emotion dysregulation): $F(6, 451)=24.384$, $p=0.001$; Pillai's Trace=0.245. Partial Eta squared was 0.25 indicating large effect size: in other words, roughly the 25% of the difference between the two groups was explained by differences in emotion dysregulation. When the dependent variables were considered separately and adopting a Bonferroni-adjusted alpha level of 0.008, five of the six DERS dimensions reached statistical significance, with small to medium effect sizes (according to Cohen et al.'s (2003) standards; see Table 1). In descending order (from the greater to the smaller effect size), they were: Nonacceptance, Strategies, Impulse, Goals, and Clarity^{Endnote 4}. An examination of the mean scores indicated that psychiatric patients reported higher levels of emotion dysregulation than community participants on all these dimensions. Only Awareness did not differentiate between the two groups.

Similarly, a second MANOVA revealed a significant difference between samples on overall mindfulness skills: $F(6, 429)=16.287$, $p=0.001$; Pillai's Trace=0.160. Partial Eta squared was 0.16 indicating large effect size: indeed, roughly the 16% of the difference between the two groups was accounted for by differences in overall mindfulness skills. When the dependent variables were considered separately and a Bonferroni adjusted alpha level of 0.01 was used, four out of five FFMQ dimensions reached statistical significance, with small to medium effect sizes (see Table 1). In descending order (from the greater to the smaller effect size), they were: Nonjudge, Act with Awareness, Observe, and Describe. An examination of the mean scores indicated that psychiatric patients reported lower levels on all mindfulness dimensions than community participants, with the only exception of the Observe subscale, on which psychiatric patients reported higher scores. Finally, levels of Nonreact were not different between the two groups.

Results of hierarchical multiple regression analysis revealed that, after controlling for gender, the DERS dimensions significantly explained an additional proportion of variance in RSQ-A total score in the community sample with large effect size, $R^2_{\text{change}}=0.203$, $F(7, 268)=10.152$, $p<0.008$, $f^2=0.25$. In particular, only the Strategies subscale of the DERS showed its unique positive contribution to the RSQ-A total score ($\beta=0.307$, $p<0.008$) in this sample, meaning that greater difficulties in relying on effective emotion regulation strategies were positively related with higher levels of RS. Indeed, after correcting the nominal significance level according to the Bonferroni procedure (i.e., $p<0.008$) all other dimensions' effects on RSQ-A total score were trivial and non-significant. However, it is worth noting that the Awareness subscale revealed a tendency to significance ($\beta=0.129$, $p=0.037$). As for the FFMQ dimensions, hierarchical multiple regression results in the community sample showed that, when controlling for gender, the Act with Awareness scale was uniquely and negatively related to the RSQ-A total score ($\beta=-0.202$, $p<0.01$), whereas the contribution of all other dimensions was non-significant with the nominal significance level set at 0.01 according to Bonferroni correction. Thus, lower levels of mindful awareness were related to greater RS. Of note, the Nonjudge subscale of the FFMQ approached significance ($\beta=-0.161$, $p=0.019$), and also the Describe scale of the FFMQ showed a tendency to significance, albeit weakly ($\beta=-0.123$, $p=0.091$). In all, the magnitude of the effect was medium, and entire model explained roughly the 15% of variance in the RSQ-A total score, $R^2_{\text{change}}=0.153$, $F(6, 264)=8.407$, $p<0.01$, $f^2=0.18$.

Likewise, in the clinical sample, the multiple regression model including the RSQ-A total score and the DERS subscale scores as dependent and independent variables, respectively, was also significant, with medium effect size $R^2=0.187$, $F(6, 169)=6.467$, $p<0.008$, $f^2=0.25$. However, none of the DERS dimensions was uniquely

Table 3. Summary of indirect effect analyses with mindfulness facets as independent variables (i.e. predictors), rejection sensitivity as dependent variable (i.e. criterion), and emotion dysregulation as mediating variable (5000 bootstrap estimates with bias corrected confidence intervals)

Sample	Independent Variable (IV)	Mediating Variable (MV)	Dependent Variable (DV)	Effect of IV on MV (Path a) β	Effect of MV on DV ^a (Path b) β	Direct effect ^b (Path c') β	Indirect effect (a × b) β (95% CI)	Total effect (c) β
Clinical (N= 191)	FFMQ Nonjudge	DERS Strategies	RSQ-A Total score	-0.65***	0.23*	-0.26**	-0.15 (-0.184 to -0.019)	-0.41***
Community (N= 277)	FFMQ Act with Awareness	DERS Total score	RSQ-A Total score	-0.56***	0.36***	-0.14*	-0.20 (-0.166 to -0.060)	-0.32***

Note: FFMQ= Five Facet Mindfulness Questionnaire; DERS= Difficulties in Emotion Regulation Scale; RSQ-A= Rejection Sensitivity Questionnaire – Adult version; CI= Confidence Interval (Lower limit to Upper limit). The indirect effect is significant when zero is not included in the CI. Beta coefficients could differ from those reported in the text since only dimensions previously found significant were entered in this final model; ^a This path refers to the effect of the MV on the DV when controlling for the IV. ^b This path refers to the effect of the IV on the DV when controlling for the MV; * $p < 0.05$; ** $p < 0.01$; *** $p < 0.001$

associated with the RSQ-A total score in the clinical sample (all $ps > 0.10$), indicating that the main effect was explained by their shared variance (i.e., general emotion dysregulation). As a whole, a greater difficulty in emotion regulation was positively related to greater RS.

Finally, in the clinical sample, multiple regression analyses revealed that the Nonjudge scale of the FFMQ was uniquely and negatively related to the RSQ-A total score ($\beta = -0.445$, $p < 0.01$), whereas the contribution of all other dimensions resulted trivial and non-significant after the alpha adjustment (i.e., $p < 0.01$) was computed according to the Bonferroni procedure. Hence, the lower was the ability to assume a non-evaluative attitude towards one's thoughts and feelings, the greater was the level of RS. Of note, the Nonreact subscale of the FFMQ revealed a tendency to significance ($\beta = -0.201$, $p = 0.019$). Overall, this latter model explained roughly the 23% of variance in RSQ-A total score, $R^2 = 0.153$, $F(5, 153) = 9.031$, $p < 0.01$, $f^2 = 0.18$, evidencing medium effect size. Throughout all regression analyses, VIF values below 10 suggested that multicollinearity did not bias any result, confirming that least squares method was appropriate.

Results of the bootstrap analyses are reported in Table 3. We tested the proposed indirect effect of mindfulness (i.e., the FFMQ scales significantly related to the RSQ-A total score) on RS (i.e., the RSQ-A total score) through emotion dysregulation (i.e., the dimensions of the DERS significantly related to the RSQ-A total score). Specifically, the indirect effect was tested using bootstrap analyses as follows. For the community sample, the Act with Awareness scale of the FFMQ was entered as the independent variable (since it was uniquely related to the RSQ-A score in the regression model described above), the DERS total score (the DERS total score was used because none of the DERS subscales was uniquely related to the RSQ-A score) as the mediating variable^{Endnote 5}, and the RSQ-A total score as the dependent variable. For the same reasons, to examine the indirect effect of mindfulness on RS through emotion dysregulation in the clinical sample, the Nonjudge scale of the FFMQ was entered as the independent variable, the Strategies scale of the DERS

as the mediating variable, and the RSQ-A total score as the dependent variable.

The tested model explained a substantial portion of the variance in RSQ-A scores in both clinical, $R^2 = 0.199$, $F(2, 153) = 19.059$, $p < 0.001$, and community samples, $R^2 = 0.173$, $F(2, 268) = 27.974$, $p < 0.001$. The total effects indicated that Nonjudge (in the clinical sample) and Act with Awareness (in the community sample) were negatively associated with RS. This suggests that psychiatric patients less prone to adopt a non-evaluative attitude towards own thoughts and emotions, presented higher levels of RS. Furthermore, our mediation hypothesis was supported, since this relation was indirectly explained by a limited access to emotion regulation strategies, albeit partially. Similarly, in the community sample, lower levels in the ability of paying ongoing attention and awareness of present activities and experiences were associated with greater RS. Notably, also this mediation hypothesis was supported: indeed, the indirect effect was partially explained by overall emotion dysregulation (a graphical depiction of the mediation models is reported in Figure 1).

DISCUSSION

The role of RS, emotion dysregulation and mindfulness deficits in psychopathology is consistently reported, yet the study of their reciprocal associations is still lacking. The present study adds to the literature in several ways. First of all, we corroborated previous evidence (e.g. Kocovski et al. 2009, Kring & Sloan 2009) attesting to the role of emotion dysregulation and mindfulness deficits in psychopathology. Indeed, our mixed psychiatric sample reported significantly higher levels of emotion dysregulation and lower levels of mindfulness skills, in most cases with large effect sizes. In particular, several dimensions of emotion dysregulation confirmed their prominent role in psychopathology. Specifically, psychiatric patients reported difficulties in the acceptance of their emotional responses, a limited access to effective emotion regulation strategies, difficulties engaging in goal-directed behavior refraining from acting impulsively when emotionally upset, and lack

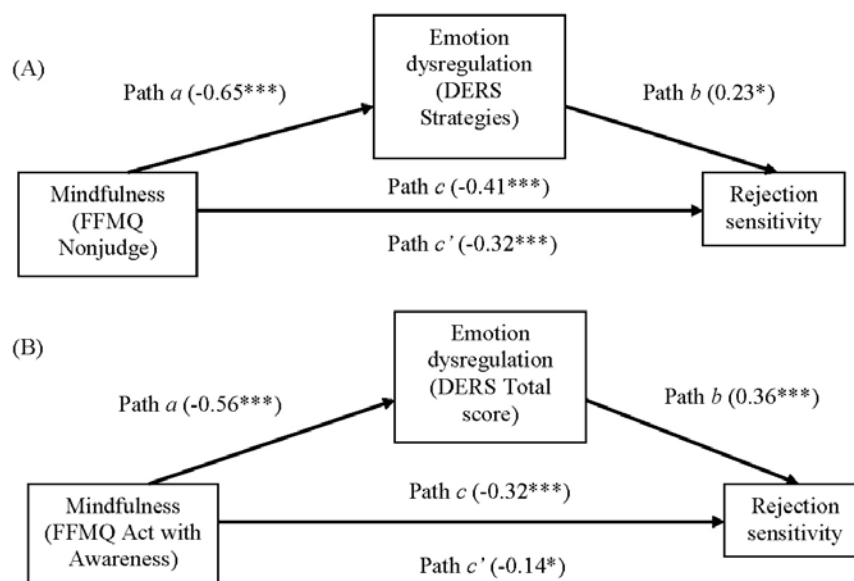


Figure 1. An illustration of the proposed mediation model in the clinical (A) and community sample (B). In both cases, Path a represents the direct effect of mindfulness on the mediator (i.e., emotion dysregulation), and Path b the effect of the mediator on rejection sensitivity, with the predictor (i.e., mindfulness) held constant. Path c' is the direct effect of mindfulness on rejection sensitivity when controlling for the variance accounted for by the mediator. Path c represents the total effect of mindfulness on rejection sensitivity (* $p < 0.05$; *** $p < 0.001$)

of emotional clarity. The striking relevance of emotional nonacceptance is worth noting and in line with traditional literature placing emphasis on the acceptance of emotion (as opposed to emotional control) as a core feature of adaptive emotion regulation (e.g. Gratz & Gunderson 2006). Indeed, more than the 20% of the variance differentiating the clinical group from the community sample was accounted for by emotional nonacceptance, highlighting its prominent role in psychopathology.

As for mindfulness facets, deficits in three specific domains resulted to characterize our clinical sample. First, psychiatric patients reported a diminished ability to attend to and acknowledge personal thoughts and feeling without assuming a critical and judgmental stance, in line with previous studies (Reese et al. 2015). Of note, this characteristic seems also in line with the presence of emotional nonacceptance mentioned above. Further, also the ability to behave paying ongoing attention to present activities and being aware of personal behavior's motives (i.e., Act with Awareness) resulted impaired among psychiatric patients. Finally, our clinical sample reported difficulties in describing and labeling inner experiences with words, which is consistent with the previously reported lack of clarity for emotions. Indeed, a lack of emotional clarity may stem from a diminished ability to think and talk about feelings. It is worth noting that in the current study psychiatric patients reported significantly higher levels on the Observe facet of mindfulness, which means that they report a greater tendency to attend to internal and external stimuli and associated cognitions and emotions. This is only partly surprising, since this dimension was previously reported as related to psychopathological

symptoms such as dissociation (Baer et al. 2006, Giovannini et al. 2014). A possible explanation is that the proneness to be constantly focused on perceptual experiences may be associated with psychological well-being in people with meditation experiences (as reported in Baer et al. 2008) even though its role in other populations (such as community or clinical samples) needs to be further investigated. Interestingly, in the validation study of the FFMQ (Baer et al. 2006), the Observe subscale did not load on the same general mindfulness factor along with the other four dimensions.

Finally, our results also replicated previous studies attesting to the role of RS as a relevant component in psychiatric disorders (Ayduk et al. 2001, Meyer et al. 2005, Zimmer-Gembeck & Nesdale 2013). Indeed, although with relatively smaller effect size, psychiatric patients reported significantly greater levels of RS, that is an increased tendency to anxiously expect, readily perceive, and intensely react to rejection cues in interpersonal situations (Downey & Feldman 1996). This finding brings new insights for the comprehension of interpersonal mechanisms that characterize psychiatric syndromes other than personality disorders. Considering the role of RS in case formulation may also help to better understand patients' tendency to appear at the same time as treatment-seeking and treatment-rejecting (Tyrer et al. 2003). Moreover, future studies are encouraged to untangle the complexity of the cognitive and affective processes implicated in the individual disposition to be extremely sensitive to rejection, in order to inform and improve therapeutic efforts. This seems particularly important since RS has been associated with several maladaptive outcomes, such as impulsive behavior (Berenson et al. 2011), uncontrolled

expressions of anger (London et al. 2007), aggression in intimate relationships (Ayduk et al. 2008) and violent behavior (Downey et al. 2000). One way to deal with the negative consequences of RS is represented by a deeper understanding of its underlying mechanisms. Results of the present study suggest that two such mechanisms could be mindfulness deficits and emotion dysregulation.

Indeed, our findings supported the hypothesized contribution of both emotion dysregulation and mindfulness deficits to RS. First, our results were largely consistent with previous studies regarding the zero-order associations between different emotion dysregulation dimensions and RS (Selby et al. 2010), and deficits in mindfulness facets were also related with RS at the bivariate level, extending previous knowledge. Finally, the intercorrelations among mindfulness facets and emotion dysregulation dimensions substantially replicated previous research (Vujanovic et al. 2010, Goodall et al. 2012, Reese et al. 2015). Of note, the strength of the associations among (several) mindfulness and emotion dysregulation dimensions was greater in the clinical sample, indicating that in the context of psychopathology, mindfulness deficits and difficulties in emotion regulation are even more intertwined. As a whole, the presence of these associations indicated that a mediational model could be tested (Hayes 2009).

As a first step, we extended previous works by highlighting the unique contribution of both emotion dysregulation dimensions and selected deficits in mindfulness facets to heightened RS. In other terms, we examined the unique predictive associations between emotion dysregulation and RS, and between mindfulness facets and RS, controlling for the variance shared among dimensions within a same construct (i.e., emotion dysregulation, or mindfulness). Summarizing, results revealed as follows: (1) In the community sample, a limited access to effective emotion regulation strategies was uniquely related to RS. Interestingly, the Strategies scale of the DERS captures the individual proneness to underestimate own abilities to regulate emotions. This implies a lack of confidence in the possibility to endorse effective emotion regulation strategies contextually-appropriate, with the associated belief that nothing can be done to feel better (Gratz & Roemer 2004). The association with RS seems to suggest that individuals with this tendency also present a more general distrust which extends to others, thus expecting and being afraid of rejection by others. (2) Regarding mindfulness, in the community sample, the tendency to paying ongoing attention to present activities and being aware of personal motives while acting (i.e., lower scores on the Act with Awareness scale of the FFMQ) resulted uniquely related to RS. This finding suggests that RS may stem from an impairment in the tendency to pay mindful awareness when acting, possibly indicating a more general difficulty in the ability to understand one's and others' behavior in terms of underlying mental states (namely,

mentalization deficits; Fonagy et al. 2002). (3) As for the clinical sample, the proneness to assume a critical and judgmental stance toward own feelings and thoughts was the only mindfulness facet independently associated with RS. (4) Conversely, none of the emotion dysregulation aspects considered showed their unique contribution to RS, suggesting that overall difficulties in emotion regulation were associated with RS, despite the independent contribution of each dimension.

As a whole, these findings point out the importance of taking into account both emotion dysregulation and mindfulness at their facet-level, tracing interesting differences when comparing clinical and subclinical levels of RS, emotion dysregulation, and mindfulness deficits. Indeed, at different levels of general functioning may correspond a specific impairment in selective components of emotion regulation and mindfulness, in turn contributing to RS in different ways.

Finally, we sought to examine whether mindfulness deficits exerted an indirect effect of RS through the contribution of emotion dysregulation. To our knowledge, this represents the first study providing findings on the mediating role of emotion dysregulation in the relationship between mindfulness deficits and RS in both community and clinical samples. Indeed, in the community sample, the previously described main effect of difficulties in acting with awareness on RS was partially explained by the lack of effective emotion regulation strategies. Taken together, these relations may portray the following scenario: people with difficulties in being aware of personal motives driving their behavior could also experience negative emotional distress with an associated poor insight of possible reasons. Therefore, they may hold the belief that nothing can be done to improve their current mood (as represented by the limited access to emotion regulation strategies). In turn, they could also believe that other people will help them, thus expecting and being afraid of receiving negative social feedbacks such as rejection.

Conversely, in the clinical sample, overall emotion dysregulation mediated the link between the inability to assume a nonjudgmental stance towards one's thoughts and feelings, and heightened RS. In other words, it is possible to argue that people presenting a self-critical attitude toward themselves are prone to experience negative emotions. Hence, if they also have difficulties in regulating emotions, this could ultimately lead them to be extremely sensitive to rejection by significant others.

Our study presents some limitations that should be addressed in future research. First, we only used self-report assessment of study variables, which may be affected by response bias. Second, the correlational, cross-sectional nature of this study precludes the possibility to propose any interpretation of the causal or longitudinal relation among key variables. Also, the snowball sampling technique that we used to recruit our community participants defines our sample as a convenience sample, thus limiting the generalizability of our results. The generalizability of our findings could

also be limited because our clinical sample was treatment-seeking and primarily Caucasian. Furthermore, since we examined a mixed psychiatric sample rather than patients with specific diagnoses, examine the same mechanisms with specific disorders might be useful. Thus, our study should be read as a first attempt to address the relevance of and the associations among these variables in psychopathology more generally. Finally, we chose a very conservative approach to control for family wise error rate adopting the Bonferroni procedure (Pernager 1998). As a side effect, this could have led to the underestimation of other significant results, by inflating the risk of incur in type II errors. However, we briefly reported also those results that would have been significant without the Bonferroni-adjusted nominal significance level. Of note, we tested alternative indirect effect models including all these paths and final results were largely unchanged^{Endnote 6}. Future investigations are encouraged to replicate and further extend our findings on larger samples (and with greater statistical power), possibly expanding measurement methods by including a multimethod assessment of mindfulness and emotion dysregulation. Larger sample sizes may also enable researchers to disentangle the broad clinical population considered here in terms of specific diagnostic clusters. Longitudinal research is also needed to explore whether improvements in mindfulness actually predict enhancements in emotion regulation, and if the latter could serve as a mediator in reducing RS.

CONCLUSIONS

As a whole, keeping these cautions in mind, the present study extends previous research on emotion dysregulation, mindfulness, and RS, adding new insights on their interrelations. Our findings support the role of mindfulness as an underlying construct for understanding psychiatric disorders. Furthermore, the centrality of emotion dysregulation for psychopathology was corroborated by the role played as a mechanism linking poor dispositional mindfulness and RS. Finally, all the hypotheses regarding RS were supported, pointing out its relevance when treating patients suffering from psychiatric disorders other than BPD. Another strength point of this study is represented by the generalization of these results using two samples, confirming the associations among mindfulness, emotion dysregulation and RS both in the context of psychopathology and in relatively well-adjusted individuals. In conclusion, a focus on mindfulness, emotion dysregulation and RS could help in improving clinical formulations and etiological models. Furthermore, if confirmed in future research, the association of these three components could be a relevant target for tailored psychological treatments.

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Table 4. Endnotes

1. Levene's test for equality of variances revealed that homoscedasticity could not be assumed, thus degrees of freedom were adjusted according to Welch–Satterthwaite procedure.
2. Of note, the Awareness scale of the DERS and the Act with Awareness scale of the FFMQ did not correlate in neither of the two samples. Thus, although the similarity of their names could be misleading, they actually capture two separate aspects. Indeed, the DERS' conceptualization of Awareness refers to the individual tendency to attend to and acknowledge own emotions when upset (Gratz & Roemer 2004). On the other hand, Baer et al. (2006) labeled Act with Awareness as the scale assessing the attitude towards an ongoing attention to, and awareness of present activity and experience. Thus, the first seems to focus more on the emotional side, and the second on the behavioral side, of conscious and intentional attention.
3. Since we sought to extend previous research by exploring the role of RS in psychopathology other than BPD, we repeated this ANOVA excluding from the analysis those patients diagnosed with personality disorders. Results remained unaltered, with only a minor decrease in effect size ($\eta^2_{\text{partial}}=0.07$).
4. It is noteworthy that, notwithstanding the reported age difference between groups (with clinical participants being slightly older), and although in the community sample age was negatively related to the Clarity dimension of the DERS (i.e., greater difficulties in emotional clarity at younger age), psychiatric patients scored lower than community participants on this dimension, evidencing greater difficulties in emotional clarity, despite the older age. Thus, there seems to be no reason to statistically control for age.
5. Given the cross-sectional design of this study, the term “mediating” is not used to infer causality. Rather, this is the variable through which the indirect effect is exerted. In other words, we hypothesized that the proportion of shared variance between the FFMQ scales and the RSQ – A score was at least partially explained by emotion dysregulation (i.e., the DERS total or scales score).
6. More specifically, bootstrapp analyses revealed as follows. In the community sample, the indirect effects of Nonjudge and Describe facets of the FFMQ on the RSQ through the DERS' Strategies scale were significant (i.e. the confidence intervals did not include zero), whereas the mediation of the Awareness subscale of the DERS was non-significant for all FFMQ dimensions (namely, Act with Awareness, Nonjudge and Describe). In the clinical sample, the model including FFMQ's Nonreact scale (instead of Nonjudge) as predictor, DERS total score as mediator, and RSQ total score as criterion was non-significant, since the bootstrapp analyses yielded a confidence of intervals that included zero.

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Correspondence:

Patrizia Velotti, MD, PhD
Department of Educational Sciences, University of Genoa
Corso Andrea Podestà, 2, 16126, Genoa, Italy
E-mail: patrizia.velotti@unige.it; patrizia.velotti@tin.it