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## The impact of gratitude on depression and anxiety: the mediating role of criticizing, attacking, and reassuring the self

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### ABSTRACT

Gratitude significantly predicts less depression and anxiety symptoms in general population. Three types of self-relating processes as possible mediators of this relationship were evaluated. Trait gratitude, depression, anxiety, and three forms of self-relating (criticizing, attacking, and reassuring the self) were assessed in 410 Italian participants. Gratitude predicted less depression and anxiety symptoms, and the three forms of self-relating partially mediated the impact of gratitude on both depression and anxiety. Self-reassuring had a stronger mediation power than self-attacking in the prediction of anxiety symptoms. Gratitude is a protective factor against psychopathology not only due to its association with improved relationships with others, but also because it is connected to a less critical, less punishing, and more compassionate relationship with the self.

### ARTICLE HISTORY

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Gratitude; self-compassion; self-criticism; depression; anxiety

### Introduction

In recent years, research has systematically shown that gratitude is strongly related to several aspects of well-being and mental health (Watkins, 2014), and promising clinical interventions have been developed to increase gratitude as a way of fostering positive functioning, improving well-being and psychological disorders (Emmons & McCullough, 2003; Emmons & Stern, 2013). Gratitude has been described as an emotion arising from noticing and appreciating the benefits that one has received (Wood, Froh, & Geraghty, 2010). It can be conceptualized both as a state and as a general disposition or personality trait. People experience gratitude when they perceive themselves to be beneficiaries of an intentionally rendered benefit that is both valuable to the recipient and costly to the benefactor (McCullough, Tsang, & Emmons, 2004).

Gratitude, as a disposition, has been defined as a “tendency to recognize and respond with grateful emotion to the roles of other people’s benevolence in the positive experiences and outcomes that one obtains” (McCullough et al., 2004, p. 112). On this basis, gratitude has often been described as stemming from the appreciation of the helpful actions of other people and, therefore, directed toward a particular benefactor (McCullough, Kilpatrick, Emmons,

& Larson, 2001). More recently, Wood et al. (2010) have described dispositional gratitude as part of a wider life orientation toward noticing and appreciating the positive aspects in one's life and the world. Therefore, gratitude does not necessarily require an interpersonal context, and it arises from both appreciating actions of specific others, and a more general appreciation of the positive aspects in one's life (Emmons & Crumpler, 2000).

### The relationship between gratitude and psychopathology

Several empirical studies have established links between gratitude and lower levels of psychopathological symptoms, in particular depression and anxiety (Emmons & Stern, 2013; for a review see Wood et al., 2010). Research has systematically yielded significant negative correlations in the moderate range between trait gratitude and depression (Kendler et al., 2003; McCullough et al., 2004; Stoeckel, Weissbrod, & Ahrens, 2014), even after controlling for positive affectivity, negative affectivity, and social desirability (McCullough, Emmons, & Tsang, 2002). In two longitudinal studies, Wood et al. (2008) found that trait gratitude predicted lower levels of depression independently of the Big Five factors of personality. As noticed by Wood et al. (2010), these findings are not surprising, considering that a life orientation toward the positive seems incompatible with the "negative triad" of beliefs about self, world, and future, which is typical of the depressive mind-set (Beck, Rush, Shaw, & Emery, 1979).

Less explored is the relationship between gratitude and anxiety symptoms, but recent investigations have confirmed that such relationship exists. A large ( $N = 2621$ ) epidemiological study examined the role of thankfulness in predicting the lifetime history of nine psychiatric disorders (Kendler et al., 2003). Thankfulness predicted significantly lower risk of generalized anxiety disorder. Additionally, Stoeckel et al. (2014) found that dispositional gratitude moderated the relationship between parental health status and college-age children's anxiety. Also McCullough et al. (2002) found gratitude to be negatively associated with depression, anxiety, and envy in non-clinical samples.

### Mediating factors

Despite these evidences, underlying mechanisms linking gratitude to well-being and decreased psychopathology have yet to be completely understood, and several mediating factors have been proposed and tested.

In fact, gratitude interventions might not operate through the mechanism of increased gratitude. For example, Emmons and McCullough (2003, Study 3) showed that keeping gratitude lists improved both positive affect and negative affect and that this effect was mediated by increases in daily average levels of gratitude. However, changes in gratitude did not mediate the decrease in negative affect.

Other mechanisms that have been found to partially mediate the link between gratitude, increased well-being and less psychopathological symptoms are positive affect (Lambert, Fincham, & Stillman, 2012), and positive coping strategies (Wood, Joseph, & Linley, 2007).

Another likely, but unexplored, candidate to mediate the association between gratitude and the occurrence of psychopathological conditions may be the way we "relate to ourselves," if criticizing and attacking ourselves or trying to be warm, encouraging, and kind with ourselves.

### *Self-criticizing, self-attacking, and self-reassuring*

Self-criticism has been defined as an integrated system of beliefs, emotions, and attitudes that people might have toward themselves in response to failures or setbacks (Gilbert, 2005). Research has shown that we respond to our own attacks with the same response systems that we use to face external attacks and threats (Longe et al., 2010). The self-to-self relationship that characterizes self-criticism constitutes a serious risk for depression and related disorders (Whelton & Greenberg, 2005; Zuroff, Mongrain, & Santor, 2004), and it is also a major component of anxiety and personality-focused research (see, for example, Dunkley, Sanislow, Grilo, & McGlashan, 2006).

Given that self-criticism is a trans-diagnostic mechanism pervading many disorders (Kannan & Levitt, 2013) and that its mediating role has already been demonstrated by previous studies (James, Verplanken, & Rimes, 2015; Martins, Canavarro, & Moreira, 2015; Pinto-Gouveia, Castilho, Matos, & Xavier, 2013), we hypothesized that the way we relate to ourselves might also be a mediator in the relationship between dispositional gratitude and psychopathological conditions, such as depression and anxiety. McCullough et al. (2002) suggested that seeing oneself as the recipient of other people's generosity may lead one to feel valued, esteemed, and with a sense of "deservingness," which may boost self-esteem, reduces self-criticism and the sense of worthlessness, a key feature of depression phenomenology. Moreover, grateful people possess a worldview that is more focused on the appreciation of the good things that are present in one's life, including personal qualities, skills, and resources. As a result, they may be less prone to see themselves as "not enough," more willing to consider themselves as resourceful, and to encourage themselves, which may lead to less anxiety in facing life circumstances. Moreover, if self-criticism and self-blame are activated in response to frustrations or failures as suggested by Gilbert (2010) and Hassija and Gray (2013), a grateful mind-set, with its focus on what is positive and fulfilling in life, could prevent people from recurring to this maladaptive coping strategy.

Emmons and Crumpler (2000) have pointed out a paradoxical aspect to gratitude: genuine gratefulness is to feel indebted for a gift that is appraised as costly to provide, valuable, and altruistically offered, and that can never be fully repaid. Thus, gratitude involves a "willingness to remain indebted," and a sense of safety in acknowledging dependency on the benefactor. Feeling gratitude entails recognizing and accepting that we need or needed the support of external sources to reach our goals, and, implicitly, that "it is ok" to be needy and not totally self-reliant. This might lessen the sense of inadequacy and self-criticism that often stems from realizing our own limitations, while increasing acceptance of our shared humanity (the "common humanity" facet of self-compassion, as described by Neff, 2003a,b).

Findings from cross-sectional studies have been supporting the link between "other-oriented" processes, such as gratitude, and "self-oriented" processes, such as self-blame and self-esteem. Wood, Joseph, and Linley (2007) found that coping styles, such as self-blame (a strong correlate of self-criticism; Petrocchi, Ottaviani, & Couyoumdjian, 2014), significantly mediated the relationship between gratitude and stress, but did not substantially mediate the relationship between gratitude and happiness, depression, or satisfaction with life. However, despite the similarities, self-blame and self-criticism refer to distinct processes. Self-blame is conceptualized as an internal attributional style that focuses on one's behavior or on stable aspects of a person's disposition as the causal forces for external events, specifically stressors (Janoff-Bulman, 1979). Self-criticism has been described as a "reflexive psychological

behavior" (Whelton & Greenberg, 2005), which entails not only a self-blaming attributional style, but also maladaptive, negative thoughts about the self, affective states (anger, disgust, contempt, disappointment for the self), and action tendencies (correcting, or punishing and attacking the self; Gilbert et al., 2004). To our knowledge, the link between gratitude and self-criticism had not been directly explored yet. Also the relationship between gratitude and a positive form of self-evaluation (i.e., self-esteem) has been established. Dispositional gratitude was found to predict greater daily self-esteem in persons with post-traumatic stress disorder (Kashdan, Uswatte, & Julian, 2006), and self-esteem mediated the relations between dispositional gratitude, and suicide ideation and attempts in a large sample of adolescents (Li, Zhang, Li, Li, & Ye, 2012). However, the self-evaluative process that is at the core of self-esteem and the positive emotions stemming from such evaluation relevantly differ from the ability to reassure and be kind and compassionate toward ourselves (Neff, 2003a). Evaluating and liking the self, emphasizing our good qualities is connected to feelings of pride and superiority (Aberson, Healy, & Romero, 2000), which may lead to narcissism, self-absorption, and self-centeredness (Damon, 1995). Being kind and reassuring with ourselves, which is a core component of self-compassion (Neff, 2003b), gives rise to positive emotions that are not based on comparisons between self and others, but are linked to the warm positive feelings of contentment, soothing, and connectedness (Gilbert, 2010). We are not aware of any research that considered the link between dispositional gratitude and this positive self-relating process, but the already established association between gratitude and positive self-evaluation seems to suggest that such link may exist.

### This study

The aim of the study was to evaluate possible mediation models for the relationship between gratitude and symptoms of depression and anxiety. Specifically, we tested three types of "self-to-self" relationships as possible mediators: self-criticizing, self-attacking, and self-reassuring, as assessed by the *Forms of Self-criticizing/attacking and Self-reassuring Scale* (FSCRS; Gilbert et al., 2004). We hypothesized that these three forms of self-relating processes would be significant mediators of the association of gratitude with depression and anxiety. However, given that self-attacking has found to be particularly connected with depressive symptoms (Gilbert et al., 2004), we expected self-attacking to have a stronger mediation power than self-criticizing and self-reassuring in the prediction of depressive symptoms. Instead, self-reassuring and self-criticizing, which represent less extreme forms of self-relationship than the one that usually characterizes depression, were expected to convey a stronger mediation power than self-attacking in the prediction of anxiety symptoms.

## Method

### Participants

The study was conducted through an online survey (QuestionPro), and participants were recruited via both Sapienza University students mailing list, and other professional mailing lists (consisting of subjects who had previously provided consent to be contacted for participation in future studies), and web advertising. The e-mail with the link to the online survey invited participants "to take part of a study on the relationship between thoughts

and positive emotions." Five hundred and thirty-nine participants agreed to participate and 410 completed the study ( $M_{\text{age}} = 33.35$ ;  $SD = 11.2$ ; age range: 17–65; 252 women (61.46%) and 158 men (38.53%). Most respondents had finished junior (11%) or senior high school (27.2%), 19.5% had a bachelor's degree, 30.5% had a master's degree, and 11.8% had a doctoral degree or a second-level master's degree. Many respondents (40%) were students, while 29.1% were employed, 14.1% were self-employed professionals, 9.7% were retired, and 7.1% were unemployed. One hundred and ninety-four participants described themselves as religious (97.3% of them were Catholic), and 216 as non-religious.

### Measures

Each participant completed an assessment battery that included several self-report questionnaires.

#### Socio-demographic and personal information

Participants were asked to complete a socio-demographic form, which included items regarding gender, age, and religiosity (yes/no).

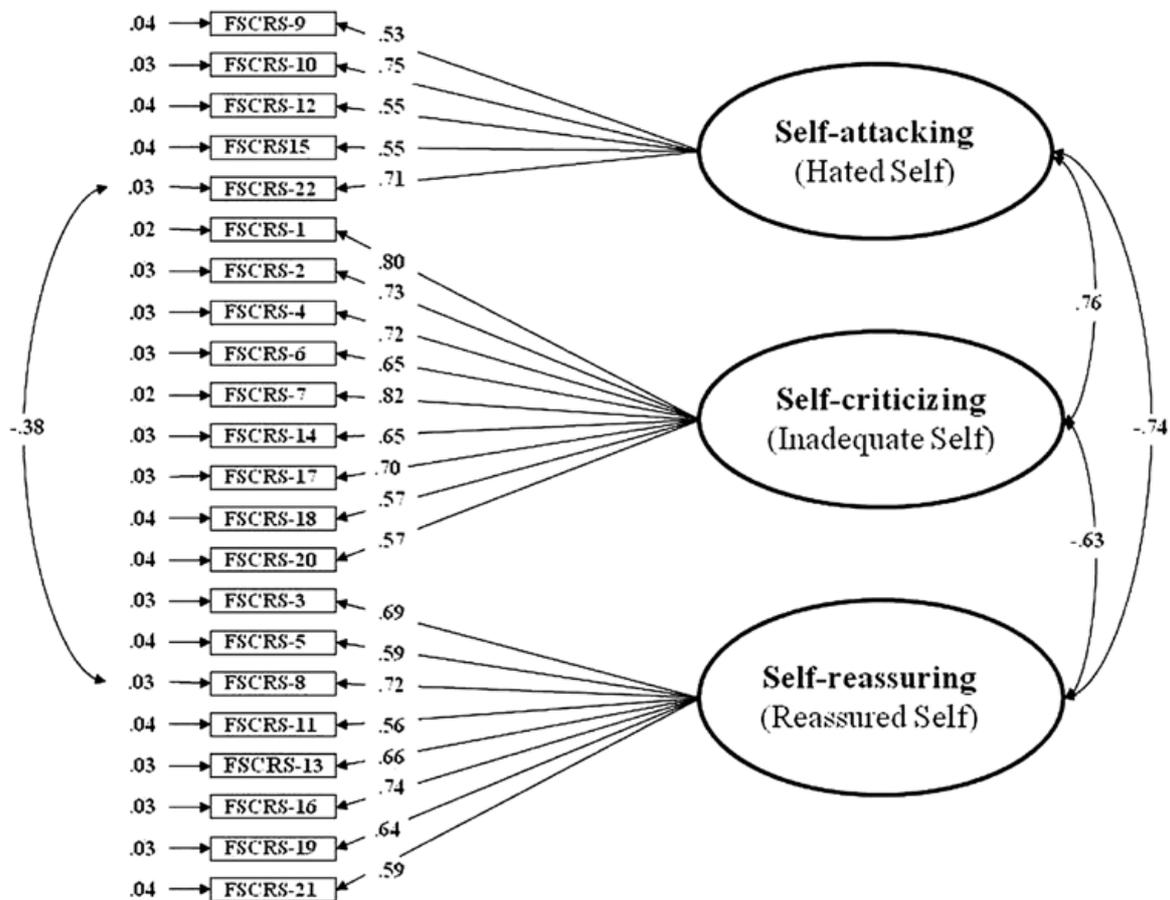
#### Gratitude

The *Gratitude Questionnaire* (GQ-6; McCullough et al., 2002; Italian adaptation by Ruini and Vescovelli, 2013) is a six-item self-report questionnaire that was used to assess participants' proneness to experience gratitude in daily life. Items reflected the gratitude intensity facet (e.g., "I feel thankful for what I have received in life."), the gratitude frequency facet (e.g., "Long amounts of time can go by before I feel grateful to something or someone."), the gratitude span facet (e.g., "I sometimes feel grateful for the smallest things."), and the gratitude density facet (e.g., "I am grateful to a wide variety of people."). Six items are rated on a seven-point Likert scale, ranging from 1 (strongly disagree) to 7 (strongly agree), which are summed to give a single score between 6 and 42. The GQ-6 has consistently demonstrated strong concurrent and predictive validity across multiple studies (e.g., McCullough et al., 2002; Wood et al., 2009). In this study, internal consistency was  $\alpha = .82$ .

#### Self-criticizing, self-attacking, and self-reassuring

The *Forms of Self-criticizing/attacking and Self-reassuring Scale* (FSCRS; Gilbert et al., 2004) was employed. The scale consists of 22 items assessing the way people "treat themselves" when things go wrong. Participants rate a series of affirmations on a five-point Likert scale, ranging from 0 (not at all like me) to 4 (extremely like me). This measure is composed by three dimensions: *inadequate-self* (self-criticizing), which assesses feelings of inadequacy and a sense of irritation and frustration toward the self (e.g., "When things go wrong for me I am easily disappointed with myself"); *hated-self* (self-attacking), which assesses a more extreme form of self-criticism, characterized by feeling of self-repugnance and desire to hurt the self in response to failures and setbacks (e.g., "I have a sense of disgust with myself"); and *reassured-self* (self-reassuring), which indicates the ability to be self-soothing/reassuring and treat the self with kindness and compassion when facing faults and failures (e.g., "I am gentle and supportive with myself").

An Italian adaptation for this scale was missing. Thus, before being used in this study, the 22 items comprising the FSCRS were translated and adapted for Italian language with



**Figure 1.** CFA model of factorial structure of the FSCRS.

Note: All parameters are standardized and statistically significant at  $p < .001$ .

a back-translation procedure. A confirmatory factor analysis with Mplus 5.1 (Mplus, Los Angeles, CA), using the maximum likelihood estimation, was then performed to test the factorial validity of the Italian version of the FSCRS. Fit indices confirmed the appropriateness of the three-factor model devised by Gilbert et al. (2004) and confirmed by recent study (Baião, Gilbert, McEwan, & Carvalho, 2014):  $\chi^2 = 624.60$  ( $df = 191$ ),  $p < .0001$ ,  $\chi^2/df = 3.2$ , RMSEA = .069, SRMR = .057, CFI = .91 and TLI = .90 (see Figure 1).

Subscale scores are computed by calculating the mean of subscale item responses. In this study, internal consistency was  $\alpha = .90$  for the *inadequate-self*,  $\alpha = .86$  for the *reassured-self*, and  $\alpha = .84$  for the *hated-self*.

### Depression

The *Center for Epidemiologic Studies Depression Scale* (CES-D; Radloff, 1977; validated in Italian by Fava, 1983) was administered. The CES-D is a widely used 20-item self-report scale designed to measure the frequency of occurrence of symptoms of depression during the past week in the general population. A sample item is: "I felt that I could not shake off the blues even with help from my family or friends." The frequency of each symptom during the past week is rated on a scale that ranges from 0 (rarely/none of the time, less than 1 day) to 3 (most or all of the time, 5–7 days). A total score, ranging from 0 to 60, is computed by adding the 20 items together. CES-D has systematically shown adequate internal consistency

**Table 1.** Means, standard deviations, and correlations among the study variables.

	M (SD)	1	2	3	4	5	6	7
(1) Anxiety	43.5 (11.7)	1						
(2) Depression	19.2 (11.8)	.71**	1					
(3) Gratitude	31.4 (6.9)	-.36**	-.45**	1				
(4) Self-criticizing	2.7 (.9)	.66**	.51**	-.22**	1			
(5) Self-attacking	1.6 (.7)	.59**	.52**	-.30**	.58**	1		
(6) Self-reassuring	3.5 (.7)	-.64**	-.51**	.39**	-.56**	-.54**	1	
(7) Age	33.35 (11.2)	-.13**	-.07	.08	-.15**	-.11*	.11*	1

\*\* $p < .01$ ; \* $p < .05$ .

and construct validity (Eaton, Bradley, & Morrissey, 2014). In this study, internal consistency was  $\alpha = .92$ .

### Anxiety

The *Spielberger State-Trait Anxiety Inventory—Trait Form* (STAI; Spielberger, Gorsuch, & Lushene, 1970; validated in Italian by Pedrabissi and Santiello, 1996) was employed. STAI-Trait is a commonly used 20-item self-report measure of anxiety proneness requiring participants to rate their frequency of anxiety symptoms on a four-point Likert scale, ranging from 1 (almost never) to 4 (almost always). A sample item is: "I worry too much over something that really doesn't matter." A total score, ranging from 20 to 80, is computed by adding the 20 items together. Internal consistency coefficients for the scale have ranged from .86 to .95 (Spielberger, Sydeman, Owen, & Marsh, 1999). In this study, internal consistency was  $\alpha = .93$ .

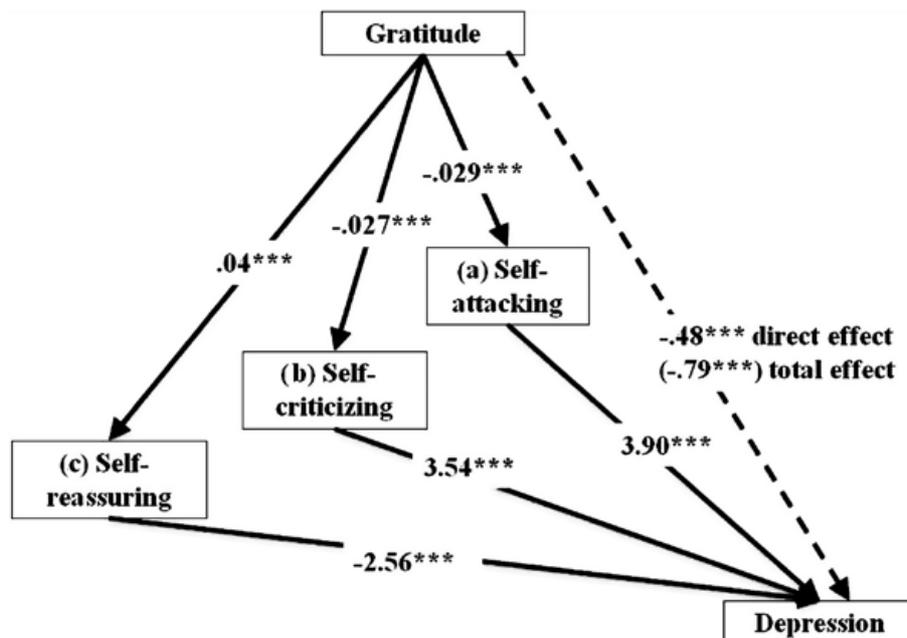
### Procedure

The survey was administered in a single session, and it took about 40 min to complete. After providing instructions and informed consent, all respondents completed a series of forms, and then, they were debriefed and thanked for their time. This study was approved by the Institutional Review Board of the University where the study was conducted.

## Results

### Preliminary data analyses and descriptive statistics

The assumptions of linearity, independence of errors, and homoscedasticity were met. Kolmogorov–Smirnov and Shapiro–Wilk tests showed that several variables were not normally distributed. However, skewness and kurtosis' values were not severely biased, as these were below the recommended cutoff points (Kline, 1998), consistent with the assumption of approximate normal distributions. Means and standard deviations of all the study variables are presented in Table 1. A series of one-way ANOVAs showed that religious participants scored significantly lower than non-religious participants on the *anxiety*,  $F(1, 408) = 4.1$ ,  $p < .05$  ( $M$  (SD) = 42.3 (11.1) and  $M$  (SD) = 44.8 (12.4), respectively), and *self-attacking* scales,  $F(1, 408) = 6.5$ ,  $p < .05$  ( $M$  (SD) = 1.6 (.6), and  $M$  (SD) = 1.7 (.7), respectively). Women scored significantly higher than men on the *gratitude* scale,  $F(1, 408) = 8.5$ ,  $p < .01$  ( $M$  (SD) = 32.1 (6.4) and  $M$  (SD) = 30.0 (7.6), respectively) and lower on the *self-attacking* scale,  $F(1, 408) = 4.6$ ,



**Figure 2.** Total, direct, and indirect effects of gratitude on depression, controlling for age, gender, and religiosity.

Notes: All coefficients are unstandardized (B); \*\*\* $p < .001$ . Completely standardized indirect effect of Gratitude on Depression: *Gratitude/Self-criticizing* path,  $\beta = -.0474$ , (CI  $[-.09, -.02]$ ); *Gratitude/Self-attacking* path  $\beta = -.0563$ , (CI  $[-.09, -.01]$ ); *Gratitude/Self-reassuring*  $\beta = -.0548$ , (CI  $[-.08, -.01]$ ). Path a = path b = path c.

$p < .05$  ( $M$  ( $SD$ ) = 1.5 (.6) and  $M$  ( $SD$ ) = 1.7 (.7), respectively). No other significant differences emerged.

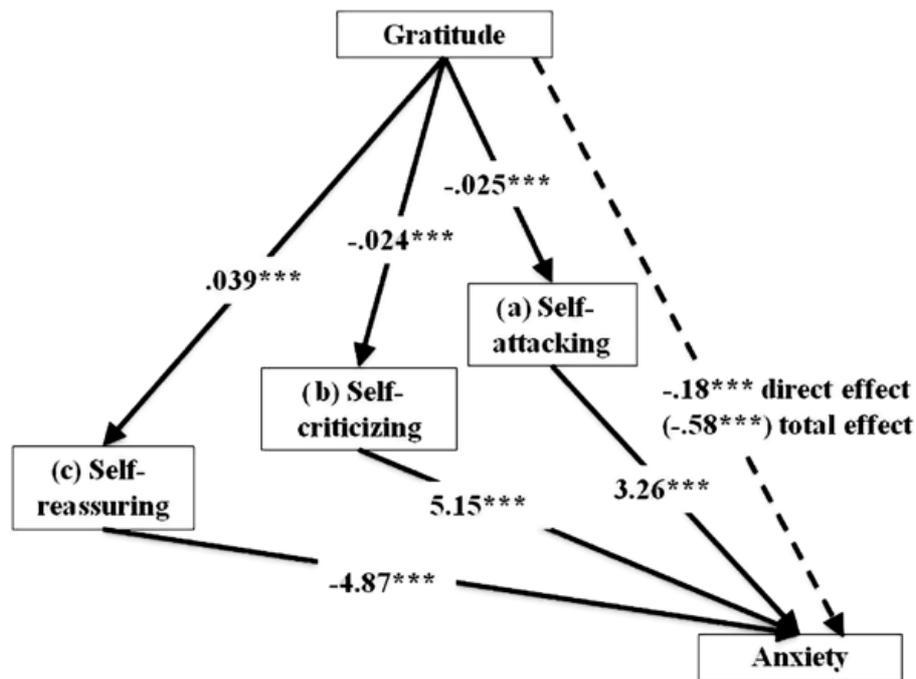
### **Bivariate correlations among the study variables**

As illustrated in Table 1, gratitude showed negative correlations with the *self-criticizing* and the *self-attacking* scales, and a positive correlation with the *self-reassuring* scale, with effects ranging from small to medium in terms of Cohen's standards. Moreover, gratitude was moderately and negatively correlated with both depression and anxiety scales. FSCRS subscales were significantly inter-correlated in the expected direction with large effects, as well as correlated with depression and anxiety in the expected direction. This pattern of correlations appeared to be consistent with the mediation model hypothesized.

Additionally, age was found to correlate negatively with anxiety, *self-criticizing*, and *self-attacking*, and positively with *self-reassuring*.

### **Direct and indirect effects of gratitude on depression**

All mediation tests were performed using the Preacher and Hayes (2008) PROCESS macro with 5000 bootstrap samples, which provides unstandardized betas for total, direct, and indirect effect estimates, and corresponding 95% confidence intervals. If the values between the upper and lower confidence limits of indirect effects do not include zero, this indicates a statistically significant mediation effect. If the value of the direct effect remains significant, this indicates partial mediation. A test of the difference between indirect effects was also



**Figure 3.** Total, direct, and indirect effects of gratitude on anxiety, controlling for age, gender, and religiosity. Notes: All coefficients are unstandardized (B);  $***p < .001$ . Completely standardized indirect effect of Gratitude on Anxiety: *Gratitude/Self-criticizing* path,  $\beta = -.0716$ , (CI  $[-.12, -.04]$ ); *Gratitude/Self-attacking* path  $\beta = -.0474$ , (CI  $[-.08, -.02]$ ); *Gratitude/Self-reassuring*  $\beta = -.1105$ , (CI  $[-.15, -.07]$ ). Path a < path c.

conducted. Again, unstandardized betas for each of the three differences and the corresponding 95% confidence intervals are provided in order to determine significance.

The model including gratitude as predictor, the three FSCRS subscales as mediators, and depression as criterion, controlling for age, gender, and religiosity accounted for 43.8% of depression, and all individual direct effects were significant and in the expected direction (see Figure 2 for unstandardized and standardized coefficients). The total indirect effect of gratitude (via all FSCRS subscales) was significant ( $B = -.31$ ; CI  $[-.42, -.22]$ ), suggesting that the three FSCRS dimensions mediated the effect of gratitude on depression. In addition, the direct effect of gratitude on depression remained significant ( $B = -.48$ ,  $t(402) = -6.91$ ,  $p < .001$ , CI  $[-.62, -.34]$ ) when the mediators were included in the model, thus suggesting a partial mediation. Individual indirect effects of gratitude were all significant, with  $B = -.09$  (CI  $[-.16, -.05]$ ) for the *gratitude/self-criticizing* path,  $B = -.11$  (CI  $[-.18, -.06]$ ) for the *gratitude/self-attacking* path, and  $B = -.10$  (CI  $[-.18, -.03]$ ), for the *gratitude/self-reassuring* path. Moreover, no significant differences were found between indirect effects, suggesting that the effect of gratitude on depression was mediated similarly by the three FSCRS dimensions.

### Direct and indirect effects of gratitude on anxiety

The model including gratitude as predictor, the three FSCRS subscales as mediators, and anxiety as criterion, controlling for age, gender, and religiosity accounted for 58.5% of anxiety and all individual direct effects (see Figure 3 for unstandardized and standardized coefficients) were significant and in the expected direction. The total indirect effect of gratitude (via all FSCRS subscales) was significant ( $B = -.40$ ; CI  $[-.53, -.28]$ ), suggesting that the three

FSCRS dimensions mediated the effect of gratitude on anxiety. In addition, the direct effect of gratitude on anxiety remained significant ( $B = -.18$ ,  $t(402) = -3.08$ ,  $p < .005$ , CI  $[-.30, -.07]$ ) when the mediators were included in the model, thus suggesting a partial mediation. Individual indirect effects of gratitude were all significant, with  $B = -.13$  (CI  $[-.20, -.07]$ ), for the *gratitude/self-criticizing* path,  $B = .08$  (CI  $[-.15, -.03]$ ) for the *gratitude/self-attacking* path, and  $B = -.19$  (CI  $[-.27, -.13]$ ), for the *gratitude/self-reassuring* path.

Moreover, the indirect effect of *gratitude/self-attacking* path was significantly lower than the *gratitude/self-reassuring* path (contrast difference:  $B = .11$ ; CI  $[.02, .21]$ ), suggesting that the latter had a more relevant role in the mediation model.

## Discussion

A growing body of recent research findings shows that the disposition to be grateful has robust associations with multiple aspects of mental health. Grateful people not only tend to show more fulfilling, meaningful relationships (Algoe, Gabel, & Meisel, 2010), but also lower rates of many psychological disorders such as depression and anxiety (Kendler et al., 2003). However, research on possible mediating factors of the relationship between trait gratitude and mental health is still scarce. The aim of the study was to expand the knowledge on possible underlying mechanisms linking gratitude to lesser depression and anxiety, evaluating three types of “self-to-self” relationships as possible mediators.

Results confirmed that three types of self-relating processes (criticizing, attacking, and reassuring the self) partially mediated the impact of trait gratitude on depression and anxiety. These mediation models were confirmed even when controlling for age, gender, and religiosity, which have been found to be significant moderators of trait gratitude (Allemand & Hill, 2014; Kashdan, Mishra, Breen, & Froh, 2009).

The grateful disposition represents a protective factor against depression and anxiety partly because it is significantly connected to a lower level of feelings of inadequacy and self-denigration, but also lower self-hate and self-repugnance, which represent more severe forms of self-criticism. Additionally, being grateful renders individuals more prone to show kindness, comprehension, support, and compassion toward themselves when setbacks and frustrations occur. As regards depressive symptoms, contrary to our expectations, self-attacking did not convey a stronger mediation power than self-criticizing and self-reassuring. Thus, a grateful disposition positively impacts depressive symptoms not prevalently through the lessening of the typical depressive self-relating style (self-attacking), but also because it is linked to increased ability to reassure and encourage the self, and to attenuate a sense of self-inadequacy in front of failures. However, as regards anxiety, self-reassuring was a significantly stronger mediator than self-attacking. Thus, grateful people experience less anxiety mostly because they are able to encourage and be compassionate and reassuring toward themselves when things go wrong in life.

Several observations could be advanced to explain the relationship between dispositional gratitude and positive self-relating. McCullough et al. (2002) suggested that seeing oneself as the recipient of other people’s generosity may lead one to feel valued, esteemed, and with a sense of “deservingness,” which may boost self-esteem, reduce self-criticism and the sense of worthlessness.

Moreover, grateful people may possess a worldview that is more focused on the appreciation of the good things in life, including personal qualities, skills, and resources, which may

lead to less self-criticism when facing life circumstances. In fact, the association of gratitude and self-esteem, which is a positive *evaluation* of the self, has already been reported (see, for example, Chen & Wu, 2014). This study adds to this literature by showing that dispositional gratitude is also associated with specific ways of *relating* with the self, in particular with higher compassionate self-reassuring, and less self-criticizing and self-attacking. Gratitude, as an “other-oriented” process, has been found to promote prosocial behavior (Tsang, 2006) and improve relationships with others (Algoe, Fredrickson, & Gable, 2013; Williams & Bartlett, 2014). The present findings show that gratitude is also associated with an improved “relationship with the self,” in the form of a more positive and compassionate way of treating ourselves when things go wrong in life, which partially explains why grateful people are also less depressed and anxious. Recent findings suggest that a grateful disposition is significantly connected to a higher secretion of oxytocin, a neuropeptide that has been shown to lead to social approach-related motivation and behavior (Algoe & Way, 2014). Additionally, Colonnello and Heinrichs (2014) have shown that oxytocin administration influences effortful stage of self-related information processing, enhancing self-attribution of positive adjectives, thus improving the representation of self. Cardoso, Ellenbogen, and Linnen (2012) have also reported the effect of acute intranasal oxytocin in improving positive self-perceptions of personality, with participants in the oxytocin condition showing higher ratings of extraversion and openness to experiences (traits characterized by positive emotions, warmth, trust, altruism, and openness to values and ideas) than participants in the placebo condition.

Similarly, the calm and peaceful types of positive feelings associated with feeling cared for, reassured, and warmly supported, instead of harshly criticized, are also linked to a neurohormonal profile of increased oxytocin (Depue & Morrone-Strupinsky, 2005; Gilbert, 2010). Thus, it is possible that a grateful mind-set may facilitate the activation of cognitive and emotional processes that exhibit a similar psychophysiological profile, such as warmth and self-reassurance (Gilbert, 2014), concomitantly reducing incompatible processes, such as self-criticism and self-attacking.

### **Limitations and future directions**

Our results should be considered within the context of several limitations. First, the use of a largely Caucasian convenience sample may limit the generalizability of our results. The correlational and cross-sectional nature of the study prevents conclusions being drawn regarding causal links between gratitude, self-relating styles, and psychopathological symptoms. However, several longitudinal explorations have confirmed the impact of a grateful disposition on both depression and anxiety symptoms (Kleiman, Adams, Kashdan, & Riskind, 2013; Wood et al., 2008) allowing us confidence in the direction of influence tested in this study. Similarly, longitudinal studies have shown the link between a grateful disposition and self-relating processes such as self-esteem (Chen & Wu, 2014), and between self-criticism and symptoms of both depression and anxiety (Cox, Clara, & Enns, 2009; Gautreau, Sherry, Mushquash, & Stewart, 2015), supporting the directionality hypothesized by our model. However, causal directionality could be more clearly established by future experimental or longitudinal research.

Future explorations might also compare the mediators analyzed in this study with some of the previously studied mediators, and see also how they might interact.

The self-report nature of the study increases the possibility that social desirability may have inflated both reports of gratitude and self-criticism. However, McCullough et al. (2002) showed that the self-report of gratitude is substantially related to peer report, not highly correlated with social desirability, and controlling for social desirability does not significantly alter the relationship between gratitude and other psychological variables. Despite these limitations, this study provided novel findings, which might potentially lead to improvements in the clinical practices aimed at the reduction of self-criticism and shame-based difficulties.

If the disposition to be grateful predicts less self-criticism and self-hate, and more warm and self-reassuring attitude, then it is possible that also gratitude interventions might be effective in reducing self-criticism and enhancing self-kindness and self-compassion. Sergeant and Mongrain (2011) investigated the benefits of gratitude exercises in self-critical individuals and found that self-critics, as opposed to needy individuals, were particularly responsive to this kind of intervention. According to the authors, gratitude exercises are especially well suited to highly self-critical individuals, encouraging them to compensate for the negative self-focus and replace it with appreciation for the outside world.

Thus, future research could experimentally test whether incorporating gratitude exercises into existing compassion-focused approaches, such as Compassion-Focused Therapy (Gilbert, 2010, 2014), could enhance their efficacy in reducing self-aversion (Brach, 2012) and increasing compassionate self-acceptance.

## Disclosure statement

No potential conflict of interest was reported by the authors.

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