

## **Implicit Theories of Emotion, Goals for Emotion Regulation and Cognitive Responses to Negative Life Events**

### **Abstract**

Why do some people routinely respond to emotional difficulty in ways that foster resilience, while others habitually engage in responses associated with deleterious consequences over time? This study examined relations between emotion controllability beliefs and goals for emotion regulation (ER) with peoples' multivariate profile of cognitive ER strategy use. Cluster analysis classified 481 university students (81% female) as adaptive, maladaptive, or low regulators based on their multivariate profile of engagement in five adaptive and four maladaptive cognitive ER strategies. A discriminant function analysis predicting the multivariate profiles supported that lower emotion controllability beliefs and lower performance-avoidance goals for ER significantly distinguished maladaptive regulators from adaptive regulators. Moreover, lower learning, performance-avoidance, and performance-approach goals for ER significantly distinguished low regulators from maladaptive and low regulators. Taken together, findings support that emotion-related beliefs and goals may help to clarify why some people habitually engage in more adaptive patterns of cognitive ER in response to negative life events than others.

The ability to effectively regulate emotional responding is central to adaptive functioning across the lifespan (Rawana et al., 2014; Zeman et al., 2006). Conversely, difficulties regulating emotion are associated with difficulties throughout life and are even considered a transdiagnostic risk factor for the development and maintenance of various psychopathologies (Berking & Wupperman, 2012; Kring & Sloan, 2010). Indeed, the critical role of emotion regulation in healthy development has sparked decades of research leading to notable progress in our

understanding of emotion, the strategies people use to regulate their emotions, and the links between various emotion regulation strategies and mental health (e.g., Webb et al., 2012). Nevertheless, the psychological processes motivating people to persistently differ in their responses to emotional distress that, in turn, have important implications for psychological functioning, remain unclear.

In contrast to the emotion regulation literature, a wealth of theory and empirical work on motivation in other self-regulation domains has sought to delineate the types of goals people pursue that, in turn, serve to organize their characteristic patterns of self-regulatory responding (e.g., Wormington & Linnenbrink-Garcia, 2016). To date, the most fundamental distinction made by motivation scholars has been between learning (also called mastery) goals focused on developing or improving competence, and the two dimensions of performance goals focused on proving ability (performance-approach) or avoiding proof of low ability (performance-avoidance; Dykman 1998; Grant & Dweck 2003; Kaplan & Maehr, 2007). Moreover, decades of research has supported that higher controllability beliefs and higher learning goals are associated with a pattern of adaptive, mastery-oriented self-regulatory responding, whereas lower controllability beliefs (called an entity theory) and higher performance goals are linked to more maladaptive patterns (Dweck & Grant, 2008; Dweck & Leggett, 1988). In light of empirical support for an implicit theory framework in explaining distinct patterns of adaptive and maladaptive patterns of self-regulation in several other domains (e.g., academia, athletics, health psychology; for a review, see Burnette et al., 2013), the present study sought to examine relations between emotion controllability beliefs learning and performance (performance-avoidance and performance-approach) goals, and adaptive versus maladaptive patterns of emotional responding, so as to add to current understanding of the psychological processes that

inform the self-regulation of emotion. In the following sections, we outline the implicit theory framework and the multivariate patterns of self-regulation that have been identified in the emotion regulation literature. We then proceed with a review of current research on emotion controllability beliefs and goals for emotion regulation leading to the specific hypotheses for the current study.

### **The implicit theory framework: Controllability beliefs, goals, and self-regulation**

According to the implicit theory framework, patterns of adaptive versus maladaptive self-regulation can be conceptualized as converging on two main factors: the core beliefs people hold regarding the fundamental controllability of their important self-attributes (i.e., their implicit theories), and the goals they are oriented to pursue in the context of these beliefs (Dweck & Leggett, 1988). People holding lower controllability beliefs theories tend to view their personal attributes (e.g., intelligence, morality) as fixed characteristics that are relatively immutable to attempts at change or control (Dweck & Leggett, 1988). From this perspective, individuals' motivations are more likely to be organized around performance goals (avoidance and approach) focused on documenting and validating competence (and avoiding potential threats to competence) in relation to others (Dweck, 2000; Hong et al., 1999). People holding higher controllability beliefs tend to view their personal attributes as more malleable characteristics that are amenable to change or control (Dweck & Leggett, 1988). From this higher controllability perspective, individuals' motivations are more likely to be organized around learning goals focused on personal growth through the cultivation of their competencies (Dweck, 2000; Hong et al., 1999).

A second major tenet of the implicit theory framework is that, implicit theories (both directly and indirectly through learning and performance goals) have critical implications for the

self-regulatory responses of individuals facing setbacks (Dweck & Grant, 2008). Lower controllability beliefs and allied performance goals have been found to predict a more maladaptive pattern of self-regulation characterized by attributing failure to low ability, heightened distress and shame, increased defensiveness, and a withdrawal of self-regulatory effort (Blackwell et al., 2007; Cury et al., 2006; Magno, 2012; Robins & Pals, 2002; Trzesniewski et al., 2003). Higher controllability beliefs and allied learning goals have been found to predict a more adaptive pattern of self-regulation, characterized by effort and strategy attributions for failure, heightened enthusiasm and determination, and more active and effective use of self-regulatory strategies (Doron et al., 2009; Dweck, 2000; Grant & Dweck, 2003; Gucciardi et al., 2015; Howell & Buro, 2009; Robins & Pals, 2002). Finally, it is through these distinct patterns of responding that different implicit theories and goals are associated with different trajectories of adaptation and psychological health (Dweck & Grant, 2008). Whereas lower controllability beliefs and performance goals predict lowered self-esteem and reduced achievement over time, higher controllability beliefs and learning goals predict increases in self-esteem and an increased likelihood of goal success (Blackwell et al., 2007; Cury et al., 2006; Robins & Pals, 2002).

### **Adaptive and maladaptive patterns of self-regulation in the domain of emotion**

Considerable differences exist in the ways people cognitively respond to negative life events, with important implications for their psychological health (Aldao et al., 2010). In the emotion regulation literature, the array of conscious, cognitive means through which individuals respond to the emotion-eliciting information resulting from negative life events are commonly referred to as cognitive emotion regulation strategies (Garnefski et al., 2001; Thompson, 1994). Although the adaptiveness of any particular cognitive emotion regulation strategy clearly

depends on the context and skill with which it is applied (Aldao, 2013; Bonanno & Burton, 2013), several studies have supported the idea that habitual engagement in certain strategies is associated with different levels of risk for long-term emotional problems (for reviews, see Aldao & Nolen-Hoeksema, 2011; Aldao et al., 2010; Berking & Whitley, 2014; Kring & Sloan, 2010; Naragon-Gainey et al., 2017; Webb et al., 2012). For example, strategies that involve habitually overemphasizing the negative consequences of an unpleasant event (catastrophizing), repetitively thinking about one's thoughts and feelings about what one has experienced (rumination), and blaming oneself (self-blame) or others (other-blame) have been associated with higher levels of negative affect (Garnefski & Kraaij, 2006, 2007; Lei et al., 2014; Martin & Dahlen, 2005; Martins et al., 2016; Vanderhasselt et al., 2014; Zlomke & Hahn, 2010) and characterized as maladaptive cognitive emotion regulation strategies. Conversely, accepting negative emotion (acceptance), generating neutral or positive interpretations of distressing events (cognitive reappraisal), downplaying the significance of a negative event (putting into perspective), turning one's attention towards unrelated positive experiences (positive refocusing), and making deliberate attempts to alter a distressing event or manage its consequences (planning/problem solving) are examples of cognitive emotion regulation strategies that typically have negative associations with psychopathology (Aldao et al., 2010; Lei et al., 2014; Martin & Dahlen, 2005) and are generally considered adaptive for mental health (Aldao & Nolen-Hoeksema, 2010; Garnefski et al., 2001).

Although individuals realistically engage in more than one emotion regulation strategy at a time (Brans et al., 2013), most research has focused on bivariate associations between cognitive emotion regulation strategies and indices of mental health. As such, several scholars have emphasized the added value of considering the multivariate “profile” or unique

combination of emotion regulation strategies people use, as opposed to focusing solely on their reported engagement in any discrete strategy (Eisenbarth, 2012; Sideridis, 2006). In line with this notion, multiple studies have indicated that different profiles of emotion regulation strategy use are associated with differing levels of well-being and psychological symptoms (e.g., Chesney & Gordon, 2016; Dixon-Gordon et al., 2014; Doron et al., 2013, 2014; Eftekhari et al., 2009; Van Eck et al., 2017). A brief review of this body of work suggests that at least three profiles of emotion regulation have consistently emerged across studies: an “adaptive” profile characterized by high use of active (vs. passive/avoidant) strategies, a “maladaptive” profile characterized by high use of passive and avoidant (vs. active) strategies, and an “intermediate” profile characterized by equal (high or low) endorsement of active and passive/avoidant strategies overall. Taken together, research on multivariate profiles of emotion regulation indicates that different profiles of emotion regulation are indeed associated with important differences in mental health. Nevertheless, why some people may be more likely to engage in one profile of emotion regulation or another has yet to be investigated.

### **Implicit theories and self-regulation in the domain of emotion**

Several scholars have suggested that emotion controllability beliefs may influence adaptation in the emotional domain through their effect on self-regulation. In particular, scholars have proposed that higher emotion controllability beliefs are associated with more active emotion-regulatory attempts that promote more adaptive psychological functioning (John and Gross, 2007; Tamir & Mauss, 2011; Tamir et al., 2007). Supporting this notion, higher emotion controllability beliefs have been associated with greater cognitive reappraisal (De Castella et al., 2013; Kneeland, Nolen-Hoeksema, et al., 2016b; Schroder et al., 2015; Tamir et al., 2007), an adaptive cognitive emotion regulation strategy involving changing the construal of emotion-

eliciting events to alter their psychological impact before emotional response tendencies are elicited (Gross & John, 2003). Moreover, De Castella et al. (2013) found cognitive reappraisal to partially mediate relations between emotion controllability beliefs and psychological health, such that lower emotion controllability beliefs predicted lower cognitive reappraisal that, in turn, predicted lower well-being and greater perceived stress. Recently, some scholars have suggested that emotion controllability beliefs may not only be associated with individual differences in cognitive reappraisal, but also with one's level of engagement in cognitive emotion regulation overall (Kneeland, Dovidio, et al., 2016). Supporting this notion, Kneeland, Nolen-Hoeksema, et al. (2016a) found that individuals primed with lower (vs. higher) emotion controllability beliefs were more likely to report feeling there was nothing they could change about their emotional difficulty in response to a negative emotion induction task, and engaged in less use of adaptive (e.g., putting into perspective) and maladaptive (e.g. self-blame) cognitive emotion regulation strategies. Taken together, these findings are consistent with the implicit theory framework in suggesting that emotion controllability beliefs may indeed be linked to individual differences in the use of certain emotion-related self-regulation strategies. Nevertheless, how emotion controllability beliefs may be related to multivariate patterns of cognitive emotion regulation remains unclear.

### **Goals and self-regulation in the domain of emotion**

To date, only two studies have investigated performance and learning goals in the domain of emotion. In line with the implicit theory framework, performance goals for emotion regulation refer to motivations focused on documenting and proving one's emotional competence in relation to others (performance-approach goal) or avoiding the perception of a lack of emotional competence (performance-avoidance goal; Rusk et al., 2011). Learning goals for emotion

regulation are motivations focused on understanding and learning from one's emotional experiences and view emotional challenges as opportunities for personal growth (Rusk et al., 2011). Correlational studies have supported that higher performance (avoidance and approach) goals for emotion regulation are associated with higher depressive symptoms and greater use of maladaptive emotion regulation strategies such as rumination and thought suppression, whereas learning goals for emotion regulation are associated with greater self-reflection, higher emotion regulation self-efficacy beliefs, and greater use of cognitive reappraisal. Specifically, performance-avoidance goals were found to be better predictors of depressive symptomology than performance-approach goals when controlling for emotion regulation. Additionally, individuals with performance-avoidance goals were less likely to re-evaluate situations or use negative emotions for learning and growth (Rusk et al., 2011). Moreover, experimental research has linked learning (vs. performance) goals for emotion regulation to more adaptive emotion regulatory responses immediately after completing a negative emotion induction task (Fredericks et al., 2017). While further studies are needed to confirm these links, current findings are consistent with the implicit theory framework and offer preliminarily support for the notion that goals for emotion regulation are significantly linked to individual differences in self-regulation and adaptation in the domain of emotion. Nevertheless, whether goals for emotion regulation are associated with different profiles of cognitive emotion regulation remains to be explored, and the relationship between emotion controllability beliefs and goals for emotion regulation is unknown.

### **The current study**

The present study has three primary objectives. First, we sought to understand the relationship between emotion controllability beliefs with learning and performance goals



(avoidance and approach goals) for emotion regulation. In line with the implicit theory framework, we hypothesized (H1) that higher emotion controllability beliefs would be associated with lower performance goals and higher learning goals for emotion regulation. Next, we investigated whether emotion controllability beliefs and goals for emotion regulation would predict multivariate emotion regulation profiles. Specifically drawing from the implicit theory framework, we hypothesized (H2a) that higher emotion controllability beliefs and higher learning goals for emotion regulation would be associated with an increased likelihood of engaging in an “adaptive” profile of cognitive emotion regulation in response to negative life events, characterized by higher use of adaptive cognitive emotion regulation strategies (i.e., acceptance, reappraisal, positive refocusing, planning, putting into perspective), and lower use of maladaptive cognitive emotion regulation strategies (i.e., catastrophizing, rumination, self-blame, and other blame). Conversely, we hypothesized (H2b) that lower emotion controllability beliefs and higher performance goals for emotion regulation would be associated with an increased likelihood of engaging in a “maladaptive” emotion regulation profile, characterized by lower use of adaptive and higher use of maladaptive cognitive emotion regulation strategies. The final objective was to examine learning and performance goals for emotion regulation as mediators in the relationship between emotion controllability beliefs and the profiles of cognitive emotion regulation strategy use. Specifically, it was hypothesized (H3a) that higher performance goals for emotion regulation would mediate the relationship between lower emotion controllability beliefs and an increased likelihood of engaging in a maladaptive emotion regulation. Conversely, it was hypothesized (H3b) that higher learning goals for emotion regulation would mediate the relationship between higher emotion controllability beliefs and an increased likelihood of engaging in an adaptive emotion regulation profile.

## **Method**

### **Participants**

Participants were 483 university students (81% female) ages 18 to 25 ( $M_{\text{age}} = 20.20$ ,  $SD_{\text{age}} = 1.46$ ). Most participants were in their first (34.8%) or second (32.9%) year of undergraduate studies, and currently enrolled in four (40.80%) or five (47.36%) courses in the faculty of arts (39.07%) or science (32.45%). Self-reported ethnicities were as follows: 59.01% Caucasian, 15.53% East Asian, 8.07% mixed, 3.73% Southeast Asian, 3.52% South Asian, 2.48% Arab, 1.66% Latin American, 1.24% Black, 0.21% Aboriginal, and 3.52% other (1.04% preferred not to answer).

### **Procedure**

Students were invited to participate in an online study about dealing with difficult emotions using contact information obtained from a database of students who had previously expressed interest in participating in studies related to stress and coping, as well as through advertisements posted on student webpages. Compensation included a raffle ticket for one of ten \$30 gift certificates, and at the end of the survey, participants were offered feedback about their current stress and a list of student, community, and online mental health resources. A total of 573 individuals submitted their survey responses but were only considered for analysis if they were between 18 and 25 years of age, currently enrolled at a Canadian post-secondary institution, and successfully responded to three attention items dispersed throughout the survey ( $n = 483$ ).

### **Measures**

***Implicit theory of emotion (emotion controllability beliefs)***

The Implicit Theories of Emotion scale (ITES; Tamir et al., 2007) included two high controllability items (e.g., “if they want to, people can change the emotions that they have”) and two lower controllability items (e.g., “the truth is, people have very little control over their emotions”), rated on a five-point Likert scale (1 = *strongly disagree*, 5 = *strongly agree*). Lower controllability items were reverse-scored and an average was calculated such that higher scores reflected higher emotion controllability beliefs, and lower scores reflected lower emotion controllability beliefs (range: 1–5). The ITES has demonstrated acceptable internal consistency ( $\alpha = .77-.78$ ) in college student samples (De Castella et al., 2013; Tamir et al., 2007) and was also acceptable in the present investigation ( $\alpha = .75$ ).

### ***Cognitive emotion regulation strategies***

The 18-item Cognitive Emotion Regulation Questionnaire (CERQ-Short; Garnefski & Kraaij, 2006) was used to assess trait-level engagement in cognitive emotion regulation strategies. Regulatory strategy use was assessed within the cognitive domain, rather than behavioural, in order to ensure alignment with the measures of emotion controllability as well as goals for emotion regulation, which also assess emotion-related constructs within the cognitive domain. The CERQ-Short specifically assessed engagement in five adaptive cognitive emotion regulation strategies: acceptance (e.g., “I think that I have to accept that this has happened”), planning (e.g., “I think about a plan of what I can do best”), refocusing (e.g. “I think of pleasant things that have nothing to do with it”), reappraisal (e.g., “I think I can learn something from the situation”), putting into perspective (e.g., “I think that it hasn’t been too bad compared to other things”); and four maladaptive cognitive emotion regulation strategies: rumination (e.g., “I am preoccupied with what I think and feel about what I have experienced”), catastrophizing (e.g., “I continually think about how horrible the situation has been”), self-blame (e.g., “I think that

basically the cause must lie within myself”), and other-blame (e.g., “I feel that others are responsible for what has happened”). Participants rated each item on a five-point Likert scale (1 = *almost never*, 5 = *almost always*) and ratings were summed for each scale (range: 2-10). An initial validation study supported the nine-factor structure and internal consistency of the CERQ-Short subscales ( $\alpha = .68$  [self-blame] to  $.81$  [catastrophizing and positive reappraisal]), and its convergent validity with the original 36-item measure (Garnefski & Kraaij, 2006). In the present study, internal consistency ( $\alpha$ ) was acceptable for a majority of the scales (catastrophizing =  $.86$ , acceptance =  $.82$ , perspective =  $.80$ , refocusing =  $.80$ , reappraisal =  $.78$ , other-blame =  $.77$ , self-blame =  $.76$ ) but may be questionable for the planning ( $\alpha = .67$ ) and rumination ( $\alpha = .63$ ) subscales. This is consistent with previous research finding relatively lower internal consistency values for these particular subscales (e.g., Chesney & Gordon, 2016; Ireland et al., 2017).

### **Goals for emotion regulation**

Goals for emotion regulation were measured using the adapted version of the Achievement Goal Scale (AGS; Elliot & Church, 1997) established by Rusk et al. (2011). Five items assessed learning goals (e.g., “I want to learn as much as possible from my emotions”) and performance goals were divided into approach and avoidance orientations, such that four items assessed a performance-approach orientation (e.g., “it is important to me to handle my emotions better than other people do”), and four items assessed a performance-avoidance orientation (e.g., “I just want to avoid being unable to change how I feel”). Items were rated on a seven-point Likert scale (1 = *not at all true of me*, 7 = *very true of me*), and ratings were averaged for each subscale such that higher scores reflected higher learning, performance-avoidance, or performance-approach goals (ranges: 1-7). Rusk et al. (2011) found this adapted version of the AGS to have acceptable internal consistency for learning ( $\alpha = .90$ ), approach goals ( $\alpha = .93$ ), and

avoidance goals ( $\alpha = .78$ ). Internal consistency was similarly acceptable in the present sample ( $\alpha$ : avoidance goals = .76; learning goals = .85; approach goals = .89).

## **Stress**

Stress was measured using the four-item Perceived Stress Scale (PSS-4; Cohen et al., 1983), which assesses the extent to which individuals appraise their life as having been stressful over the past month (e.g., “in the past month, how often have you felt difficulties were piling up so high that you could not overcome them?”) on a four-point Likert scale (0 = *never*, 4 = *very often*). After reverse-scoring two items, scores were summed to produce a total stress score such that higher scores indicated greater stress. The PSS-4 has demonstrated acceptable psychometric properties in previous studies ( $\alpha = .77$ ; Warttig et al., 2013), and internal consistency in this sample was good ( $\alpha = .83$ ).

## **Well-being**

Well-being was measured using the 14-item Mental Health Continuum-Short Form (MHC-SF; Keyes, 2005), which asks participants to indicate how often during the past month they have experienced various aspects of emotional (e.g., “during the past month, how often did you feel happy?”), social (e.g., “during the past month, how often did you feel that people are basically good?”), and psychological (e.g., “during the past month, how often did you feel that your life has a sense of direction or meaning to it?”) well-being on a six-point Likert scale (1 = *never*, 6 = *every day*). Items were summed to produce a total well-being score (range: 0–70). The MHC-SF has demonstrated good psychometric properties in samples of varying ages and nationalities ( $\alpha > .80$ ; for an overview, see Keyes, 2009) and internal consistency for the total well-being score was excellent ( $\alpha = .92$ ).

## **Emotion dysregulation**

Trait-level emotion dysregulation was assessed using the Difficulties in Emotion Regulation Scale Short Form (DERS-SF; Kaufman et al., 2015). This 18-item summed measure adapted from the original 36-item DERS (Gratz & Roemer, 2004) assesses self-reported deficits in six areas on a five-point Likert scale (1 = *never* to 5 = *almost always*): emotional awareness, clarity, and acceptance, the perceived ability to effectively modulate negative emotion, and the perceived ability to control behavioral impulses and maintain goal-directed behavior when experiencing negative emotion (range: 18–90). Consistent with Kaufman et al.'s (2015) initial validation study which indicated strong internal consistency for the total DERS-SF score ( $\alpha = .89$ ), internal reliability for the total score in the current sample was also strong ( $\alpha = .90$ ).

## **Statistical analyses**

Corresponding to the first hypothesis within the present study (H1), cluster analysis was used as an exploratory approach to determine the multivariate cognitive emotion regulation profiles, as well as to assess whether the emergent profiles within this study were consistent with earlier findings reported in the literature as outlined in the review above. Following guidelines provided by Hair et al. (2010), a hierarchical followed by a non-hierarchical cluster analysis was conducted to classify participants according to similarities in their patterns of engagement across nine cognitive emotion regulation strategies: acceptance, positive reappraisal, putting into perspective, positive refocusing, catastrophizing, rumination, self-blame, and other-blame. Corresponding to the second hypotheses (H2a & H2b), the cluster analysis was followed by a discriminant function analysis to determine whether emotion controllability beliefs and learning, performance-avoidance, and performance-approach goals, when combined, would accurately predict the pre-existing clusters of cognitive-emotion regulations strategies as an outcome, i.e.,

maladaptive, adaptive, and low regulation. This was conducted in order to examine whether the potential differences between the emotion regulation profiles were a function of emotion controllability beliefs in combination with emotion-regulation goals. Therefore, the discriminant function analysis specified emotion controllability beliefs and learning, performance-avoidance, and performance-approach goals as the independent variables (i.e., forming the discriminating predictor variate), and cluster membership (adaptive, maladaptive, and low regulators) as the three-group dependent variate.

Lastly, a mediation analysis was conducted to assess the indirect effects of emotion controllability beliefs on emotion regulation strategy use through emotion regulation goals corresponding to the final hypotheses (H3a & H3b) within this study. A nonparametric bootstrap resampling procedure with 5000 resamples was used to estimate the total (c), direct (c'), and indirect effects (ab) of emotion controllability beliefs on the likelihood of engaging in an adaptive versus maladaptive emotion regulation profile through the three goals for emotion regulation (learning, performance-avoidance, and performance-approach) using the SPSS add-on PROCESS (Model 4; Hayes, 2012). PROCESS is especially useful for testing this mediation model because it permits researchers to include more than one intervening variable as parallel mediators in the regression model, such that the specific indirect effects for each mediator ( $a_i b_i$ ) denote the effect of the independent variable (X) on the outcome variable (Y) that is uniquely transmitted through the  $X \rightarrow M_i$  (path  $a_i$ ) and  $M_i \rightarrow Y$  (path  $b_i$ ) sequence, after controlling for the effects of all other mediators on Y (Preacher & Hayes, 2008). As such, the specific indirect effects reported denote the unique indirect effects for each emotion regulation goal on the relationship between emotion controllability beliefs and the multivariate profile of cognitive emotion regulation. Moreover, PROCESS is advantageous in that it can combine ordinary least

squares and maximum likelihood logistic regression techniques when testing for indirect effects, permitting researchers to analyze mediation models with dichotomous outcome variables (also called mediated logistic regression; Hayes, 2012).

## Results

### Preliminary analyses

Item-level missing data was low (<1%) and missing completely at random, as evidenced by a non-significant Little's MCAR test ( $p > .05$ ). Missing values were thus imputed using expectation maximization (Tabachnick & Fidell, 2013). Two multivariate outliers were identified and excluded from analyses (analyzed  $n = 481$ ; female = 390, male = 91). Correlation, ANOVA, and t-test analyses were conducted to explore differences among the study variables in terms of age, race, and gender ( $p < .05$ ). Age ( $M_{\text{age}} = 20.20$ ,  $SD_{\text{age}} = 1.46$ ) and race were not significantly related to the study variables. Participants significantly differed in rumination,  $F(1, 479) = 5.77$ ,  $p = .017$  based on gender, such that males ( $M = 6.80$ ,  $SD = 1.91$ ) reported significantly lower rumination compared to females ( $M = 7.35$ ,  $SD = 1.95$ ). Participants also significantly differed based on performance-avoidance goals,  $F(1, 479) = 7.69$ ,  $p = .006$ , such that males ( $M = 3.78$ ,  $SD = 1.36$ ) reported significantly lower performance-avoidance goals compared to females ( $M = 4.23$ ,  $SD = 1.41$ ). As results showed that the pattern of significance for all analyses did not change with and without controlling for gender, analyses without controlling for gender are reported.

Descriptive statistics and correlations among the variables in the overall sample are reported in Table 1. Results revealed that the three goals for emotion regulation (performance-avoidance, performance-approach, and learning goals) were weakly positively correlated.



Fisher's  $r$ -to- $z$  transformations were conducted to examine potential differences in the strengths of these correlations. Results indicated that performance-approach goals were more strongly positively correlated with performance-avoidance (vs. learning) goals for emotion regulation ( $z = 2.04, p = .04$ ), and learning goals were more strongly positively correlated with performance-approach (vs. performance-avoidance) goals for emotion regulation ( $z = 2.43, p = .01$ ). Partially consistent with the first hypothesis, correlation analyses further indicated that emotion controllability beliefs were weakly negatively correlated with performance-avoidance goals, weakly positively correlated with performance-approach goals, and non-significantly correlated with learning goals for emotion regulation.

Bivariate correlations between the adaptive cognitive emotion regulation strategies (acceptance, reappraisal, refocusing, putting into perspective, and planning) were indeed negatively correlated with stress and positively correlated with well-being, and three of the four characteristically maladaptive cognitive emotion regulation strategies (catastrophizing, rumination, and self-blame) were positively correlated with stress and negatively correlated with well-being. The remaining maladaptive strategy, other-blame, was not significantly correlated with neither stress nor well-being. Finally, correlations among the nine cognitive emotion regulation strategies were below .70 (ranging from .00 to .54), supporting the independence of these constructs and suitability for cluster analysis (Nunnally, 1994).

### **Creating the multivariate profiles of cognitive emotion regulation**

First, a hierarchical cluster analysis using Ward's linkage clustering algorithm and the minimized squared Euclidean distances similarity measure was conducted to identify and compare a range of possible cluster solutions in the data. Based on the percentage changes in heterogeneity of the agglomeration schedule coefficients, the dendrogram, and the interpretability

of the cluster solution, results supported a three-cluster solution (Aldenderfer & Blashfield, 1984; Hair et al., 2010). Hierarchical (i.e., k-means) cluster analysis was then used to optimize the three-cluster solution. In this iterative procedure, cluster means from the hierarchical analysis were used as starting points for each cluster, then an algorithm reassigned participants among clusters until maximum homogeneity within clusters was achieved (Hair et al., 2010). Supporting the tenability of the three-cluster solution, cross-classification analysis indicated that a large majority (82%) of participants retained their original cluster membership across the hierarchical and non-hierarchical clustering methods. Moreover, the result of a MANOVA examining the multivariate effect the nine cognitive emotion regulation strategies on cluster membership was significant, Wilk's  $\lambda = .17$ ,  $F(18, 940) = 74.36$ ,  $p < .001$ , and a follow-up discriminant function analysis predicting cluster membership from the nine CERQ-Short scales correctly classified 96.3% of cases, supporting that the three clusters were adequately separated.

Descriptive statistics and ANOVA results confirming group differences between the three clusters on each of the nine cognitive emotion regulation strategies are presented in Table 2. Results of a series of one-way ANOVAs indicated that Cluster 1 was characterized by the highest use of adaptive cognitive emotion regulation strategies (acceptance, reappraisal, positive refocusing, planning, and putting into perspective), whereas Cluster 2 was characterized by the highest use of maladaptive strategies (self-blame, other-blame, rumination, and catastrophizing) among the three clusters. Cluster 3 was characterized by the lowest use of planning, reappraisal, self-blame, and rumination among the three clusters, but exhibited equal levels of acceptance, refocusing, and perspective taking compared to Cluster 2, and equal levels of other-blame and catastrophizing compared to Cluster 1. To facilitate interpretation, a graphical depiction of the final cluster centroids (mean z-scores) for each strategy in each cluster is provided in Figure 1.

The intra-individual pattern of cognitive emotion regulation strategy use exhibited in Cluster 1 suggests that this cluster was characterized by simultaneously high use of adaptive and low use of maladaptive emotion regulation strategies, whereas Cluster 2 showed the opposite pattern. Finally, Cluster 3 exhibited an intra-individual pattern characterized by lower use of adaptive and maladaptive cognitive emotion regulation strategies overall. Based on differences in their relative and individual patterns of engagement across the nine cognitive emotion regulation strategies, Clusters 1, 2, and 3 were labelled the “*adaptive regulators*” ( $n = 182$ ), “*maladaptive regulators*” ( $n = 132$ ), and “*low regulators*” ( $n = 167$ ), respectively.

### **Validating the clusters**

To validate the clusters, a series of univariate ANOVAs were conducted examining group differences with respect to age, past-month stress and well-being, and trait emotion dysregulation (cluster means and univariate F statistics reported in Table 2). Results indicated that the three clusters significantly differed in stress, well-being, and emotion dysregulation, such that adaptive regulators reported the highest well-being and lowest stress/dysregulation, low regulators reported moderate well-being and moderate stress/dysregulation, and maladaptive regulators reported the lowest well-being and highest stress/dysregulation. With respect to the demographic variables, group differences between the clusters were analyzed to ensure that the clusters were not a function of factors such as age, race, and/or gender. No significant differences between clusters were found for age,  $F(2, 478) = 2.82, p = .061$ . A series of chi-square analyses further indicated that the three clusters did not significantly differ with respect to race,  $\chi^2(20) = 21.16, p = .388$ , or gender,  $\chi^2(2) = 2.59, p = .274$ .

### **Predicting the multivariate profiles of cognitive emotion regulation strategies**

Results of a MANOVA indicated that the three clusters significantly differed in their implicit theory of emotion and the three goals for emotion regulation, Wilks'  $\lambda = .75$ ,  $F(8, 950) = 19.30$ ,  $p < .001$ ,  $\eta_p^2 = .14$ . Results were followed up with a discriminant function analysis revealing two significant discriminant functions that, together, explained 28% of the total variance among clusters (Functions 1 through 2: Wilk's  $\lambda = .74$ ,  $X^2(8) = 143.50$ ,  $p < .001$ ; step-down Function 2: Wilk's  $\lambda = .92$ ,  $X^2(3) = 39.09$ ,  $p < .001$ ). Function 1 was dominant, accounting for 74% of total explained variance (Eigenvalue = .24,  $R_c^2 = .20$ ), and Function 2 accounted for the remaining 26% (Eigenvalue = .09,  $R_c^2 = .08$ ). Centroids (i.e., multivariate means) for each cluster on the weighted linear combination of predictor variables represented by Functions 1 and 2 are illustrated in Figure 2.

An analysis of the structure coefficients (i.e., discriminant loadings) indicated that higher levels of the latent construct represented by Function 1 were primarily represented by higher performance-avoidance goals for emotion regulation (.87) followed by lower emotion controllability beliefs (−.39). Discriminant loadings on Function 1 for performance-approach (.10) and learning (−.25) goals were less than .30 and thus considered to be of lesser importance in terms of their impact on Function 1. Cluster centroids indicated that Function 1 primarily distinguished between the maladaptive and adaptive regulators, suggesting that higher performance-avoidance goals and lower emotion controllability beliefs were associated an increased likelihood of engaging in a maladaptive versus adaptive pattern of cognitive emotion regulation. Consistent with this notion and partially consistent with our second hypothesis (H2b), results of a follow-up ANOVA indicated that maladaptive regulators reported significantly lower emotion controllability beliefs and higher performance-avoidance goals compared to adaptive

regulators (means and descriptive statistics are reported in Table 2). Results of the follow-up ANOVA also supported that adaptive regulators reported significantly higher emotion controllability beliefs compared to low regulators whom, in turn, did not significantly differ from maladaptive regulators in their emotion controllability beliefs (H2a).

Function 2 was primarily associated with higher levels of learning goals (.91), followed by higher levels of performance-approach (.50) and performance-avoidance (.44) goals for emotion regulation. The loading for implicit theory of emotion (.20) on Function 2 was less than .30, and was thus considered non-impactful. As Function 2 primarily distinguished between adaptive and maladaptive regulators, findings suggest that higher goals for emotion regulation overall were associated with a decreased likelihood of endorsing a profile characterized by low engagement in cognitive emotion regulation. Consistent with this notion, results of a series of follow-up ANOVAs revealed that low regulators reported significantly lower learning, performance-avoidance, and performance-approach goals compared to the maladaptive regulators, and significantly lower learning and performance-approach goals compared to the adaptive regulators. Low regulators did not significantly differ from adaptive regulators in their performance-avoidance goals, and adaptive regulators did not significantly differ from maladaptive regulators in their performance-approach goals.

Results of a leave-out-one cross-validation classification analysis using prior probabilities computed from initial cluster sizes (adaptive regulators = .38, maladaptive regulators = .27, low regulators = .35) are illustrated in Table 3. Press'  $Q$  statistic was significant ( $X^2(1) = 102.49$ ,  $p < .001$ ), indicating that the independent predictor variate (i.e., implicit theories of emotion and the three goals for emotion regulation) reliably distinguished between the adaptive, maladaptive, and low regulators at a better-than-chance level. Overall classification accuracy was 55%, with

63% of adaptive, 61% of maladaptive, and 42% of low regulators correctly classified.

Misclassification was primarily due to a high proportion of low regulators being misclassified as either adaptive or maladaptive regulators (35 and 23%, respectively).

### **Indirect effects of implicit theories of emotion on emotion regulation through learning and performance goals for emotion regulation**

As our hypotheses (H3a & H3b) were concerned with the mediating effects of learning and performance goals for emotion regulation on the relationship between implicit theories of emotion and the adaptive versus maladaptive profiles of cognitive emotion regulation only, low regulators were excluded from this analysis. Adaptive regulators were coded as 1 and maladaptive regulators were coded as 0. Following guidelines provided by Preacher and Hayes (2008), regression coefficients for each path in the mediated logistic regressions were evaluated at an alpha level of .05 and mediation was assumed if the 95% bias-corrected bootstrapped confidence interval (CI) for an indirect effect excluded zero. Implicit theory of emotion and the three goals for emotion regulation were standardized prior to analysis, and so resulting paths (*a* and *b*) are standardized regression coefficients. A diagram illustrating results of the mediated logistic regression model is provided in Figure 3.

Results indicated that the total effect of implicit theory of emotion on adaptive (vs. maladaptive) emotion regulation was positive and significant,  $c = .47, p < .001, OR = 1.62, 95\% CI [1.28, 2.04]$ , suggesting that individuals with higher emotion controllability beliefs were more likely to report an adaptive (vs. maladaptive) emotion regulation profile. After including the three goals for emotion regulation in the model, the direct effect of implicit theory of emotion on adaptive (vs. maladaptive) emotion regulation was reduced but remained significant,  $c' = .38, p = .007, OR = 1.46, 95\% CI [1.11, 1.92]$ . Moreover, the confidence interval for the total indirect

effect excluded zero, supporting that mediation had occurred through the three goals for emotion regulation,  $ab_{total} = .25$ , 95% CI [.09, .45]. An analysis of the specific indirect effects revealed that, among the three goals for emotion regulation, only performance-avoidance goals uniquely mediated this relationship,  $ab_{avoidance} = .21$ , 95% CI [.07, .38], such that participants who reported higher emotion controllability beliefs also reported lower performance-avoidance goals for emotion regulation that, in turn, predicted a higher likelihood of endorsing an adaptive (vs. maladaptive) emotion regulation profile. Partially inconsistent with our third hypotheses, unique mediating effects were not found through performance-approach,  $ab_{approach} = .02$ , 95% CI [−.01, .10], or learning goals for emotion regulation,  $ab_{learning} = .02$ , 95% CI [−.02, .08].

## **Discussion**

Research adopting an implicit theory framework for conceptualizing motivation in various self-regulation domains has indicated that major patterns of adaptive versus maladaptive responding can be explained by peoples' core beliefs, or implicit theories, regarding the controllable versus immutable nature of their self-attributes, and the goals they are oriented to pursue in the context of these beliefs (Dweck & Grant, 2008; Dweck & Leggett, 1988). Drawing from the implicit theory framework, the present study is the first to investigate associations between implicit theories, goals, and adaptive versus maladaptive patterns of self-regulation in the domain of emotion.

### **Relations between implicit theories of emotion and goals for emotion regulation**

As the only study examining both implicit theories and goals in the domain of emotion to date, a primary objective was to explore relations between these constructs. While, consistent with an implicit theory framework, we anticipated a negative association between emotion

controllability beliefs and performance goals for emotion regulation, findings were partially inconsistent with these hypotheses. Although lower emotion controllability beliefs were indeed associated with higher performance-avoidance goals, higher emotion controllability beliefs were unexpectedly positively correlated with performance-approach goals, suggesting that the more one endorsed a belief that emotions are controllable the more likely they were to value demonstrating their emotional competence. Despite inconsistency with the implicit theory framework, these findings may be understood in light of previous research linking higher emotion controllability beliefs to greater emotion regulation self-efficacy (Tamir et al., 2007). Specifically, it may be that individuals with higher emotion controllability beliefs tend to also view themselves as better able to regulate their emotions and are thus more motivated to prove emotional competence because they believe that their attempts will be successful. Conversely, because individuals with lower emotion controllability beliefs tend to also view themselves as less effective at regulating their own emotions, they may feel more threatened by prospects of having to demonstrate their emotional competence, lowering their likelihood of endorsing performance-approach goals for emotion regulation. Nonetheless, additional studies are required to replicate these results, and future research may wish to investigate the moderating role of emotion regulation self-efficacy beliefs on the relationship between emotion controllability beliefs and goals for emotion regulation.

Also inconsistent with hypotheses, implicit theories of emotion controllability beliefs were unrelated to learning goals for emotion regulation, suggesting that higher controllability beliefs may not be an important precursor for learning goals in the domain of emotion. Future research examining relations between learning goals for emotion regulation and other kinds of emotion-related implicit theories may help to clarify this finding. One possibility is that learning



goals for emotion regulation are more strongly linked to implicit theories regarding one's ability to control their *reaction towards* their emotions, as opposed to their beliefs about the controllability of emotional experience itself. Indeed, several emotion scholars have emphasized important distinctions between one's ability to modify their reactions towards their emotional responses (emotion regulation) versus how these emotions arise (emotion generation) and the characteristic nature of one's emotional responses (emotional reactivity; Gross et al., 2011; Linehan et al., 2007; Mennin et al., 2005). It may be that lay people also hold different implicit beliefs about emotion regulation, emotion generation, and emotional reactivity, each with different implications for their goals in the domain of emotion. Future research may thus seek to clarify other kinds of emotion-related implicit theories people may hold and their unique roles in predicting learning, and other, goals for emotion regulation.

### **Predicting the multivariate profiles of cognitive emotion regulation**

Past research has supported significant relations between implicit theories of emotion and goals for emotion regulation with individual differences in the use of single cognitive emotion regulation strategies (e.g., Rusk et al., 2011; Schroder et al., 2015; Tamir et al., 2007). The present study extends this literature by demonstrating links between emotion controllability beliefs and goals for emotion regulation with multivariate profiles of cognitive emotion regulation strategy use. In line with the findings of previous studies using cluster analysis to categorize individuals according to their multivariate profiles of cognitive emotion regulation (Doron et al., 2013), three intra-individual patterns of cognitive emotion regulation were identified in the current study: the adaptive, maladaptive, and low regulators. Adaptive regulators exhibited simultaneously high use of adaptive (reappraisal, refocusing, putting into perspective, acceptance, and planning) and low use of maladaptive (self-blame, other-blame, catastrophizing,

and rumination) strategies, and reported lower stress, lower overall emotion regulation difficulties, and higher well-being compared to maladaptive and low regulators. Maladaptive regulators exhibited simultaneously low use of adaptive and high use of maladaptive strategies, and reported higher stress, higher emotion regulation difficulties, and lower well-being compared to adaptive and low regulators. Finally, low regulators exhibited a pattern of low adaptive and maladaptive strategies overall, and reported moderate stress, emotion regulation difficulties, and well-being compared to the adaptive and maladaptive regulators. Whereas past research has traditionally focused on associations between single cognitive emotion regulation strategies and mental health, current findings add to a growing literature suggesting that one's overall pattern of cognitive emotion regulation strategy use is importantly related to psychological adjustment (Doron et al., 2013).

Examining group differences with respect to emotion controllability beliefs and goals for emotion regulation, results indicated that adaptive regulators reported significantly higher emotion controllability beliefs and learning goals for emotion regulation, as well as significantly lower performance-avoidance goals, compared to the maladaptive regulators. Low regulators reported significantly lower performance-approach goals compared to the adaptive and maladaptive regulators, who in turn, did not significantly differ in their performance-approach goals. Moreover, results of a discriminant function analysis supported that the tendency for maladaptive regulators to report lower emotion controllability beliefs and, particularly, higher performance-avoidance goals for emotion regulation, primarily distinguished them from the adaptive regulators. Low regulators, however, were primarily distinguished from adaptive and maladaptive regulators by their tendency to report lower (learning, performance-approach, and performance-avoidance) goals for emotion regulation overall.

Together, these findings support two main conclusions. First, they suggest that, although individuals who report habitually engaging in a maladaptive (vs. adaptive) pattern of emotion regulation indeed report lower goals of understanding and learning from their difficult emotions, it is their tendency to be overly concerned with the appearance of emotional instability coupled with lower beliefs in the fundamental controllability of emotion that are the most distinguishing characteristics of this group. Second, results support that one's overall level of engagement in cognitive emotion regulation may be more importantly tied to one's goals for emotion regulation than one's beliefs in the controllability of emotion. Specifically, individuals with lower learning, performance-approach, and performance-avoidance goals for emotion regulation may be more likely to report a pattern of low (vs. adaptive or maladaptive) cognitive emotion regulation overall. Nevertheless, it is important to note that a classification analysis predicting the three profiles of cognitive emotion regulation from emotion controllability beliefs and learning, performance-approach, and performance-avoidance goals for emotion regulation suggested that these constructs were relatively less successful at classifying low regulators compared to the adaptive and maladaptive regulators (42% of low regulators were correctly classified, compared to 61 and 63% of adaptive and maladaptive regulators, respectively). As such, further research is needed to clarify additional psychological processes that may contribute to a pattern of low cognitive emotion regulation, specifically.

### **Performance-approach goals for emotion regulation**

The present study revealed some interesting findings pertaining to performance-approach goals for emotion regulation. Specifically, correlation analyses indicated that although performance-approach goals were more strongly positively correlated with performance-avoidance goals for emotion regulation, they were also significantly positively correlated with

learning goals for emotion regulation, and positively correlated to a small degree with nearly all of the adaptive and maladaptive cognitive emotion regulation strategies. Moreover, results indicated that, while the adaptive and maladaptive regulators significantly differed in their learning and performance-avoidance goals for emotion regulation, they did not significantly differ in their performance-approach goals. As such, the relevance of performance-approach goals for emotion regulation remains unclear.

Drawing from research on learning and performance goals in other domains, one possibility is that the adaptiveness of performance-approach goals depends on extent to which other (i.e., learning and performance-avoidance) goals are simultaneously endorsed (Wormington & Linnenbrink-Garcia, 2016). For example, several scholars have argued that a combination of high learning and high performance-approach goals in the academic achievement domain is the most adaptive for learning and academic functioning (Harackiewicz et al., 2002; Senko et al., 2012), whereas a combination of high performance-approach and high performance-avoidance goals is associated with a range of negative academic outcomes (Law et al., 2012; Linnenbrink-Garcia et al. 2012; Murayama & Elliot, 2009). Similarly, it is possible that performance-approach goals for emotion regulation are not inherently adaptive or maladaptive – rather, the adaptiveness of performance-approach goals for emotion regulation may vary depending on how much learning versus performance-avoidance goals for emotion regulation are simultaneously endorsed. To test this notion, future research may use cluster analysis to determine how people typically combine learning, performance-approach, and performance-avoidance goals for emotion regulation, followed by analyses of variance to examine group differences between the resulting goal profiles in terms of their emotion regulation and psychological symptoms. Indeed, such analyses would provide a more nuanced

perspective on when performance-approach goals are adaptive for emotional responding and mental health.

### **The mediating role of performance-avoidance goals**

Drawing from the implicit theory framework, a final goal of this study was to investigate learning and performance goals for emotion regulation as mediators in the relationship between emotion controllability beliefs and the profiles of emotion regulation. Findings suggested that, compared to learning and performance-approach goals, only performance-avoidance goals for emotion regulation uniquely mediated the relationship between implicit theories of emotion and adaptive versus maladaptive emotional responding. In line with theoretical expectations, higher emotion controllability beliefs predicted lower performance-avoidance goals for emotion regulation that, in turn, predicted a higher likelihood of engaging in an adaptive (vs. maladaptive) pattern of emotion regulation. Although the cross-sectional nature of this study precludes causal conclusions, findings are consistent with the original implicit theory framework (Dweck & Leggett, 1988), suggesting that lower emotion controllability beliefs may predispose individuals towards a preoccupation with avoiding emotional difficulty that increases the likelihood of maladaptive cognitive responding in the face of emotional distress. Conversely, by lowering one's motivations to avoid emotional difficulty, higher emotion controllability beliefs may increase one's likelihood of engaging in a more adaptive pattern of emotion regulation.

### **Limitations**

A limitation of this study is its cross-sectional design. Throughout, we have presented a model in which emotion controllability beliefs and goals for emotion regulation precede peoples' profiles of cognitive emotion regulation. Although these hypotheses are firmly rooted in the

implicit theory framework (Dweck & Leggett, 1988) and empirical support for its tenets (e.g., Burnette al., 2013; Dweck, 2000), true causal inferences are not possible given the correlational nature of this study. Likewise, we cannot rule out the potential for reciprocal interaction. For example, it is possible that lower emotion controllability beliefs and performance-avoidance goals for emotion regulation both increase maladaptive cognitive emotion regulation strategy use and, at the same time, are strengthened when one experiences repeated emotion regulation difficulties. Carefully implemented longitudinal studies are thus needed to confirm chronological links between these constructs. Additionally, it should be emphasized that emotion controllability beliefs and goals for emotion regulation accounted for only 28% of the variance between the three profiles of cognitive emotion regulation. Future studies that include factors such as emotion regulation self-efficacy, and other types of emotion related beliefs may improve the predictive ability of the current model. Finally, given the gender imbalance in the study (81% female), gender was controlled for in the analyses. The literature highlights clear gender differences in the endorsement of emotion regulation strategies (e.g., Zlomke & Hahn, 2010) which suggests that the models presented cannot be generalized to the overall population given that males were not represented in this sample. All results are subject to replication in other samples, which would also help to evaluate the generalizability of present findings beyond university students.

### **Clinical implications**

Although, the current study was limited to a non- clinical university predominantly female sample, making generalization tentative, it is possible to speculate on potential implications. Specifically, the present findings, if replicated with a clinical sample, may have implications for cognitive-based emotion regulation therapies aimed at challenging and

restructuring clients' maladaptive cognitions and bolstering emotion regulation self-efficacy (Hofman et al., 2013). Previously, scholars have suggested that prior to viewing oneself as able to regulate emotion, it is necessary to view emotions as fundamentally controllable (Kneeland, Dovidio, et al., 2016; Tamir & Mauss, 2011). In addition to fostering beliefs that emotions are fundamentally amenable to control, current findings suggest that clinicians may find it helpful to work with their clients to develop a learning-focused orientation towards emotional experiences, as well as actively seek to alleviate fears of losing emotional control. If not explicitly addressed, low emotion controllability beliefs and performance goals for emotion regulation may unknowingly persist throughout treatment, hindering clients' willingness to participate in therapeutic exercises perceived as threatening, and limiting their ability to generalize learned strategies to more naturalistic contexts (Kneeland, Dovidio, et al., 2016). By collaboratively exploring and exposing these emotion-related beliefs and goals as potential sources of treatment ambivalence, clinicians may help to enhance their clients' intrinsic motivation to engage in therapy, promoting more sustainable therapeutic benefits over time (see motivational interviewing; Arkowitz et al., 2017). However, suggested implications hinge on future research investigating directly how emotion controllability beliefs and goals for emotion regulation may be addressed in treatment and evaluate their roles as potential mediators of treatment-related changes for existing therapeutic approaches. To date, some scholars have argued for the role of emotion beliefs in the context of individual therapy, suggesting that higher emotion controllability beliefs may not only mediate the effectiveness of therapy on clinical outcomes, but also bolster clients' commitment to and engagement with services, promote positive expectations for change, and increase help-seeking behaviour even before treatment (De Castella et al., 2015; Schroder et al., 2015). Elucidating cognitive changes that occur in the treatment of

mental disorders is a priority of clinical research (Hertel & Mathews, 2011); and the continued study of emotion-related beliefs and goals as mediating variables across therapeutic approaches and disorders may holds promise for new insight on the etiology, maintenance, and treatment of the emotion regulatory problems underlying various psychopathologies.

## **Conclusion**

The present study is the first to examine relations between implicit theories, goals, and multivariate profiles of self-regulation in the domain of emotion. Results corroborate previous research indicating that individuals combine multiple cognitive emotion regulation strategies to cope with distress in unique ways. The results also complement existing literature by suggesting specific types of emotion-related beliefs and goals that may increase the likelihood of engaging in particular emotion regulation profiles. In line with an implicit theory framework, findings highlight the importance of conceptualizing peoples' habitual responses to emotional distress as part of the broader meaning system from which they may arise. Whereas a meaning system that encourages an emphasis on the immutability of emotion and preoccupations with the avoidance of emotional difficulty may lead to less adaptive responses to emotional distress, a meaning system that emphasizes the controllable nature of emotion and goals of learning from emotional experiences may encourage more adaptive responses. Through these distinct response tendencies emotion controllability beliefs and goals for emotion regulation may have important consequences for mental health.



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## Tables and Figures

**Table 1.** Descriptive statistics and correlations among emotion controllability beliefs, goals for emotion regulation, and the cognitive emotion regulation strategies (n = 481).

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1. Acceptance	1															
2. Planning	.26**	1														
3. Reappraisal	.37**	.54**	1													
4. Perspective	.27**	.35**	.36**	1												
5. Refocusing	.11 <sup>†</sup>	.13*	.13*	.29**	1											
6. Rumination	.16**	.16**	.18**	-.02	-.08	1										
7. Catastrophizing	-.12*	-.08	-.22**	-.21**	-.11 <sup>†</sup>	.42**	1									
8. Self-blame	.00	.06	-.04	.01	-.07	.24**	.45**	1								
9. Other-blame	-.08	.06	-.03	.03	.14*	.13*	.31**	-.12*	1							
10. Dysregulation	-.18**	-.20**	-.31**	-.13*	-.11 <sup>†</sup>	.19**	.58**	.48**	.13*	1						
11. Perceived stress	-.14*	-.22**	-.31**	-.21**	-.17**	.14*	.46**	.36**	.06	.59**	1					
12. Well-being	.18**	.34**	.40**	.25**	.21**	-.10 <sup>†</sup>	-.41**	-.31**	-.06	-.53**	-.66**	1				
13. Implicit theory <sup>a</sup>	.08	.16**	.16**	.09 <sup>†</sup>	.07	-.12*	-.15*	-.07	.05	.23**	.22**	-.19**	1			
14. Learning goal	.18**	.27**	.46**	.10 <sup>†</sup>	.00	.35**	-.05	-.01	-.02	-.20**	-.13*	.19**	.07	1		
15. Avoidance goal	-.08	-.08	-.15*	-.09 <sup>†</sup>	-.10 <sup>†</sup>	.30**	.43**	.44**	.13*	.60**	.44**	-.36**	-.12*	.09 <sup>†</sup>	1	
16. Approach goal	.06	.16**	.11 <sup>†</sup>	.11 <sup>†</sup>	.11 <sup>†</sup>	.10 <sup>†</sup>	.12*	.22**	.08	.14*	.06	-.01	.14*	.25**	.37**	1
M	7.59	6.89	7.22	6.21	4.34	7.24	5.25	6.31	3.85	46.46	7.53	40.74	3.41	4.85	4.15	4.21
SD	1.90	1.94	2.13	2.15	1.91	1.95	2.24	2.07	1.48	12.29	3.28	13.67	0.80	1.24	1.41	1.56
Range	2–10	2–10	2–10	2–10	2–10	2–10	2–10	2–10	2–10	19–84	0–16	6–70	1.25–5	1–7	1–7	1–7

Note. Pearson correlations are reported for bivariate associations among the continuous study variables.

<sup>a</sup>Higher implicit theories denote higher emotion controllability beliefs, whereas lower implicit theories denote lower emotion controllability beliefs.

\*\*p < .001. \*p < .01. <sup>†</sup>p < .05.

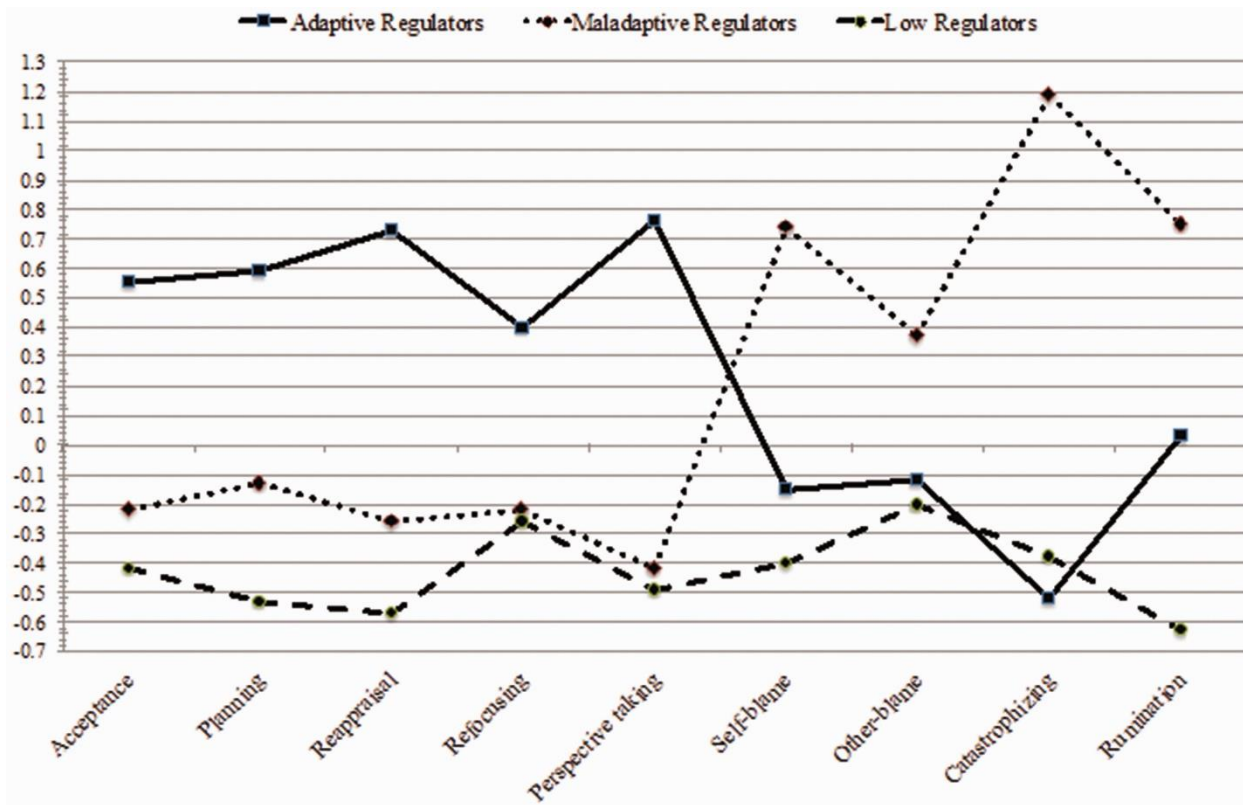
**Table 2.** Means, standard deviations, ANOVAs, and pairwise comparisons examining group differences between adaptive, maladaptive, and low regulators

Variable	Cluster 1: Adaptive regulators <i>n</i> = 182 <i>M</i> ( <i>SD</i> )	Cluster 2: Maladaptive regulators <i>n</i> = 132 <i>M</i> ( <i>SD</i> )	Cluster 3: Low regulators <i>n</i> = 167 <i>M</i> ( <i>SD</i> )	<i>df</i>	<i>F</i>	$\eta_p^2$
Acceptance <sup>a</sup>	8.64 <sup>A</sup> (1.42)	7.15 <sup>B</sup> (1.98)	6.79 <sup>B</sup> (1.76)	2, 394	54.59**	.19
Planning <sup>a</sup>	8.04 <sup>A</sup> (1.36)	6.62 <sup>B</sup> (2.06)	5.85 <sup>C</sup> (1.72)	2, 373	69.61**	.24
Reappraisal <sup>a</sup>	8.76 <sup>A</sup> (1.31)	6.65 <sup>B</sup> (1.96)	5.98 <sup>C</sup> (1.94)	2, 390	115.39**	.34
Refocusing <sup>a</sup>	5.11 <sup>A</sup> (2.10)	3.92 <sup>B</sup> (1.69)	3.84 <sup>B</sup> (1.56)	2, 458	27.05**	.10
Perspective <sup>a</sup>	7.83 <sup>A</sup> (1.67)	5.30 <sup>B</sup> (1.94)	5.15 <sup>B</sup> (1.62)	2, 419	124.93**	.35
Self-blame	5.99 <sup>A</sup> (1.88)	7.83 <sup>B</sup> (1.81)	5.45 <sup>C</sup> (1.82)	2, 478	65.71**	.22
Other-blame <sup>a</sup>	3.68 <sup>A</sup> (1.32)	4.43 <sup>B</sup> (1.77)	3.57 <sup>A</sup> (1.26)	2, 369	14.21**	.06
Catastrophizing	4.08 <sup>A</sup> (1.46)	7.93 <sup>B</sup> (1.53)	4.41 <sup>A</sup> (1.53)	2, 478	291.12**	.55
Rumination <sup>a</sup>	7.31 <sup>A</sup> (1.74)	8.71 <sup>B</sup> (1.42)	6.01 <sup>C</sup> (1.69)	2, 477	103.25**	.29
Stress	6.16 <sup>A</sup> (2.74)	9.70 <sup>B</sup> (3.23)	7.31 <sup>C</sup> (2.96)	2, 478	55.19**	.19
Well-being <sup>a</sup>	47.05 <sup>A</sup> (11.21)	32.32 <sup>B</sup> (13.19)	40.54 <sup>C</sup> (12.88)	2, 433	53.12**	.19
Dysregulation	40.44 <sup>A</sup> (9.28)	56.20 <sup>B</sup> (10.97)	45.33 <sup>C</sup> (11.44)	2, 478	86.99**	.27
Implicit theory	3.60 <sup>A</sup> (0.78)	3.21 <sup>B</sup> (0.82)	3.36 <sup>B</sup> (0.75)	2, 478	9.92**	.04
Learning goal <sup>a</sup>	5.25 <sup>A</sup> (1.16)	4.85 <sup>B</sup> (1.19)	4.43 <sup>C</sup> (1.23)	2, 478	20.45**	.08
Avoidance goal	3.72 <sup>A</sup> (1.28)	5.08 <sup>B</sup> (1.31)	3.88 <sup>A</sup> (1.28)	2, 478	48.19**	.17
Approach goal <sup>a</sup>	4.31 <sup>A</sup> (1.62)	4.47 <sup>A</sup> (1.58)	3.90 <sup>B</sup> (1.41)	2, 451	5.62*	.02
Age	20.01 (1.37)	20.23 (1.30)	20.38 (1.64)	2, 478	2.82	

<sup>a</sup>Variable violated the assumption of homogeneity of variance and, as such, Brown-Forsythe *F* statistic and Games-Howell post-hoc tests are reported. For all other variables, the homogeneity of variance assumption was met and conventional *F* tests with Bonferroni-corrected pairwise comparisons are reported.

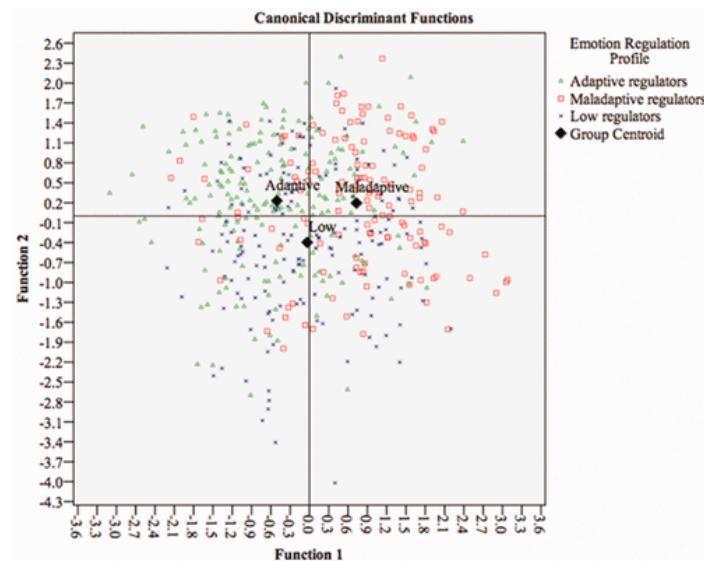
\*\*Main effect is significant at  $p < .001$ . \*Main effect is significant at  $p = .004$ . Means within a row that are superscripted with different letters (i.e., A, B, C) were significantly different at  $p < .05$ .

**Figure 1.** Cluster centers representing the mean z-scores for the nine cognitive emotion regulation strategies for each multivariate profile of emotion regulation.



**Figure 2.** Combined-group plot illustrating the separation of group centroids among the multivariate emotion regulation profiles by each discriminant function. Group centroids for Function 1: adaptive regulators =  $-.50$ , maladaptive regulators =  $.73$ , low regulators =  $-.03$ . Group centroids for Function 2: adaptive regulators =  $.23$ , maladaptive regulators =  $.19$ , low regulators =  $-.40$ . DF1 is mostly associated with higher performance-avoidance goals as well as lower emotion controllability beliefs. DF2 is mostly associated with higher levels of learning goals followed by higher levels of performance-approach and performance-avoidance goals.





**Table 3.** Cross-validated classification matrix predicting multivariate profile of emotion regulation from implicit theories of emotion, and learning, performance-avoidance, and performance-approach goals for emotion regulation.

		Actual Emotion Regulation Profile			Total
		Low regulators	Maladaptive regulators	Adaptive regulators	
Count	Low regulators	57	30	41	128
	Maladaptive regulators	35.3	22.7	16.7	74.7
	Adaptive regulators	115	80	22	217
	Total	172	110	63	345
Percent	Low regulators	33.3	27.3	22.5	83.1
	Maladaptive regulators	20.3	72.7	34.9	100
	Adaptive regulators	66.7	72.7	36.1	100
	Total	100	100	100	

Note. 55.1% of cross-validated grouped cases were correctly classified.

**Figure 3.** Parallel mediation model illustrating the total (c), direct (c'), and total indirect effect (abtotal) of implicit theory of emotion on adaptive (vs. maladaptive) cognitive emotion regulation1. All point estimates are standardized regression coefficients. Odds ratios (OR) and associated 95% CI's are reported for the logistic regression analyses. Bolded lines indicate significant path coefficients, and bolded variables indicate significant specific indirect effects for

the designated mediator, as evidenced by a 95% CI excluding zero for the specific indirect effect.

\*\* $p < .001$ . \* $p < .01$ . † $p < .05$ .

