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Published online: 09 Nov 2016.

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BRIEF ARTICLE

Emotion regulation choice in an evaluative context: the moderating role of self-esteem

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ABSTRACT

Evaluative contexts can be stressful, but relatively little is known about how different individuals who vary in responses to self-evaluation make emotion regulatory choices to cope in these situations. To address this gap, participants who vary in self-esteem gave an impromptu speech, rated how they perceived they had performed on multiple evaluative dimensions, and subsequently chose between disengaging attention from emotional processing (distraction) and engaging with emotional processing via changing its meaning (reappraisal), while waiting to receive feedback regarding these evaluative dimensions. According to our framework, distraction can offer stronger short-term relief than reappraisal, but, distraction is costly in the long run relative to reappraisal because it does not allow learning from evaluative feedback. We predicted and found that participants with lower (but not higher) self-esteem react defensively to threat of failure by seeking short-term relief via distraction over the long-term benefit of reappraisal, as perceived failure increases. Implications for the understanding of emotion regulation and self-esteem are discussed.

Two employees wait nervously for their annual performance review. One worker chooses to decrease anxiety by disengaging from the review and focusing attention on his lunch plans. A second employee chooses to engage with the upcoming evaluation in a way that changes its stressful meaning into an opportunity to learn from feedback. In everyday life, people typically make regulatory choices to deal with stressful evaluative events. What is less clear, however, is what determines the emotion regulatory choices that different people make in these real-life situations.

Relatively little is known about regulatory choices, because until recently the vast majority of studies in the field of emotion regulation have concentrated on the multiple consequences of implementing (rather than choosing between) different regulatory strategies (see Webb, Miles, & Sheeran, 2012 for a review). The emerging view from numerous studies is that regulation strategies have different consequences in varying contexts. This view has recently led to shifting the focus to directly studying emotion regulation choice patterns in changing situational demands (see Aldao & Tull, 2015; Bonanno & Burton, 2013; Sheppes & Levin, 2013 for reviews).

Several types of studies can be positioned under the emerging umbrella of emotion regulation choice, defined as the selection between available regulatory options under different contextual or situational demands (Sheppes & Levin, 2013). Studies on expressive flexibility clearly showed that the ability to implement different regulatory strategies is important for well-being (e.g. Bonanno, Papa, Lalande, Westphal, & Coifman, 2004). Although important, these studies provide indirect evidence for emotion regulation choice, as they only measure the ability to implement different strategies upon demand. Other studies have examined retrospective reports of spontaneous emotion regulation use to standardised film clip emotional stimuli (e.g. Aldao & Nolen-Hoeksema,

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2013; Ehring, Tuschen-Caffier, Schnülle, Fischer, & Gross, 2010). Although these studies have focused on selection of regulatory strategies, emotional stimuli used were removed from daily life experiences, and selection patterns were evaluated using global measures that were collected retrospectively. Two additional studies involved asking participants to provide retrospective reports of different emotional events from their daily lives and to indicate which strategies they used in these events (Aldao & Nolen-Hoeksema, 2013; Dixon-Gordon, Aldao, & De Los Reyes, 2015). While these studies involved asking participants to recall real personal events, they still relied on retrospective reports of both emotional events and emotion regulation choices.

Recently, we provided a novel conceptual framework of emotion regulation choice (Sheppes & Levin, 2013), as well as initial direct evidence for the influence of several contextual factors on the choice between two major emotion regulation strategies, distraction and reappraisal (Sheppes, Scheibe, Suri, & Gross, 2011; Sheppes, Scheibe et al., 2014). According to our framework, *distraction* involves disengaging from emotional processing at an early attentional selection phase by producing neutral thoughts, whereas *reappraisal* involves engaging with emotional information processing prior to a late modulation at a semantic meaning phase (Sheppes et al., 2011). Our main assumption was that healthy individuals would choose regulatory strategies based on a balanced evaluation of the costs and benefits of their implementation (Sheppes & Levin, 2013). Specifically, because distraction involves early disengagement from emotional processing, it can more strongly block the influence of high emotional intensity information, relative to reappraisal, but at the same time the engagement with emotional information in reappraisal, but not in distraction, can offer long-term adaptation (see Wilson & Gilbert, 2008 for a review). Accordingly, we predicted and found that an increase in emotional intensity (manipulated via emotional pictures and electric stimulation threat) resulted in increased distraction over reappraisal choice (Sheppes et al., 2011). We also found that forming long-term goals regarding emotional events moderated the emotional intensity effect and resulted in an increased reappraisal choice (Sheppes, Scheibe et al., 2014).

Two immediate shortcomings in our prior studies include the examination of emotional events that are somewhat removed from everyday life, and the lack of evaluation of important individual differences.

To that end, in the present study we examined emotion regulation choice in a personal performance evaluation context that is relevant in everyday life, and we assessed the moderating role of individual differences in responses to personal evaluation. The performance evaluation context we studied was a modified version of the Trier Social Stress Test (TSST; Kirschbaum, Pirke, & Hellhammer, 1993). Participants with varying levels of self-esteem gave an impromptu speech, after which they ranked their perceived performance on various personal dimensions, and then chose how to regulate their negative emotions while waiting to receive (factitious) feedback on these evaluative dimensions. Prior studies have identified the waiting period prior to receiving feedback as an important phase in an evaluation context that requires regulation (e.g. Carver & Scheier, 1994; Folkman & Lazarus, 1985).

Our main goal was to evaluate the moderating role of self-esteem in the relationship between self-perceived performance and emotion regulation choice. Seminal work by Baumeister, Tice, and Hutton (1989) suggested that low self-esteem individuals tend to protect threats to self-views by avoiding negative qualities and by a general unwillingness to focus their attention on self-qualities (see also Cavallo, Holmes, Fitzsimons, Murray, & Wood, 2012). Relatedly, important work by Campbell et al. (1996) suggests that low self-esteem individuals are characterised by low self-clarity that is manifested in lack of confidently defined, stable self-beliefs. Low self-clarity may lead low self-esteem individuals to refrain from engaging with self-evaluation information which requires painful confrontation with their vulnerable self-concept. Contrary to low self-esteem individuals, high self-esteem individuals' enhancement of self-views is characterised by accepting risks (including negative qualities) and by a general willingness to focus attention on self-qualities. It has been further suggested that poor perceived performance may threaten individuals with low self-esteem more so than individuals with high self-esteem, possibly due to their difficulty experiencing negative, self-referential emotions such as shame and embarrassment (Brown & Dutton, 1995).

Combining our emotion regulation choice account with conceptual views of the influence of self-esteem on reactions to perceived failure, we predicted that participants with lower (relative to higher) levels of self-esteem would be less able to balance the relative costs and benefits of distraction and reappraisal when

regulating negative emotions that arise from poor per-ceived performance. Specifically, participants with lower levels of self-esteem would favour the short-term benefit of distracting from potentially negative feed-back as self-perceived performance decreases, and thus not benefit from the long-term adaptation effects that are inherent in reappraising negative feedback.

Method

We report how we determined our sample size, all data exclusions, all manipulations, and all measures in the study.

Participants

Prior studies that measured the effect of *one* contex-tual variable (i.e. emotional intensity) on regulatory choices yielded large effect sizes with a sample of 20 individuals (Cohen's *d*'s > 2, c.f. Sheppes et al., 2011; Sheppes, Scheibe et al., 2014). However, the present study involved a different and a significantly more complicated variant of the choice paradigm (see below), and it additionally examined the moderating role of self-esteem. Given expectations for substantial smaller effects, we aimed to double the sample size and recruit a minimal number of 40 participants before the quarter ended. In the end of the quarter, we were able to recruit 55 college students from 2 West Coast universities to participate in the study. Of these, five participants were excluded from all analyses because they explicitly reported during debriefing that they suspected deception. Four additional participants were excluded because their self-esteem scores were not recorded due to computer failure. Five additional participants were excluded because they failed to comply with exper-imental instructions (i.e. showing marked signs of sleepiness during the session; not understanding the difference between distraction and reappraisal) during the course of the study.[1] Therefore, the final sample included 41 participants (16 men and 25 women).[2]

Procedure

Upon arrival, participants were informed that they would be delivering a speech in front of an evaluator and a video camera. In order to further sensitise partici-pants to the evaluative nature of the study and control for habitual individual differences, participants were asked to rate how anxious they felt (on a 9-point Likert scale) to receive feedback on a list of dimen-sions[3] on which they would be evaluated following their speech.[4]

After pre-speech anxiety ratings, participants were told that after they would give the speech, they will be able to choose between two regulatory forms (dis-traction and reappraisal) while waiting to receive eva-luative feedback on the aforementioned dimensions that constitute their performance. Participants were then taught how to employ distraction (i.e. "think of something completely unrelated to the evaluative score") and reappraisal (i.e. "attend to the idea of receiving an evaluative score, but change its meaning"). To ensure adherence to regulatory instructions, participants were asked to talk out loud how they implemented each instruction, and were corrected by the experimenter when needed. The order of regulatory instructions was counterbalanced across participants.

Following the teaching phase, participants com-pleted four practice trials, which were identical to actual trials of the emotion regulation choice paradigm (see below), and then began the speech performance phase, in which we implemented a modified version of the TSST (Kirschbaum et al., 1993). Our version con-sisted of giving an impromptu speech (excluding a mental arithmetic component) in front of a video camera and one evaluator, according to the modifi-cations made by Andrews et al. (2007), who showed no stress-response distinction when in front of one or two evaluators and with or without an arithmetic component. The 23-year-old Caucasian male confeder-ate, who acted as the evaluator, was deceptively intro-duced as personnel from the admissions committee of one of Stanford's graduate departments. Participants prepared for three minutes and then delivered a five-minute speech on why their unique qualities and attri-butes make them the ideal candidate for a position (Kirschbaum et al., 1993). Participants were also informed that following their speech, they would receive assessments from the evaluator on the same previously ranked self-performance dimensions. If during their speech participants stopped talking before the allotted five minutes were up, the evaluator asked them to continue.

After the speech task, participants ranked their per-ceived performance on each dimension using a per-centile scale ranging from 1 (performing "above 10% of all other participants") to 9 (performing "above 90% of all other participants"). Perceived performance

was used as a measure for perceived failure, where lower performance scores represented increased failure and accompanying negative emotions for receiving feedback. After ranking their own performance, participants were given two additional regulation choice practice trials before beginning the actual emotion regulation choice trials.
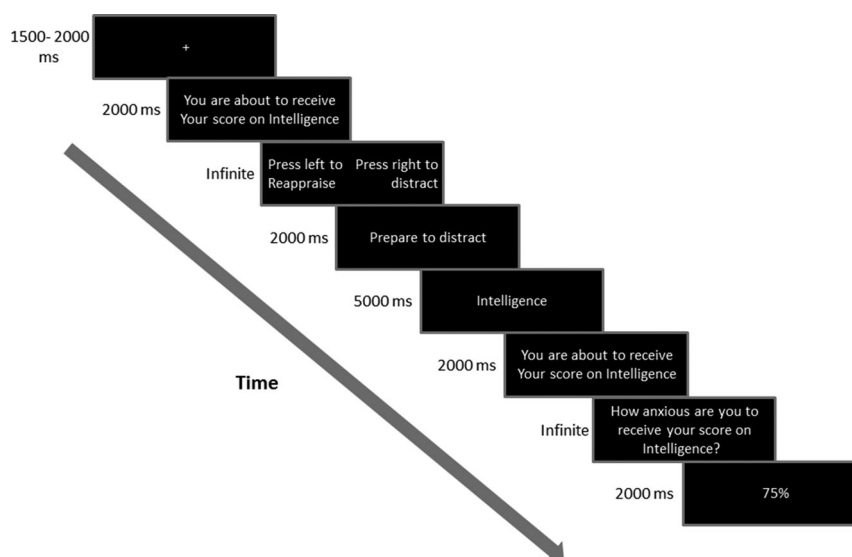
The emotion regulation choice outcome was assessed in a series of trials (see Figure 1 and Sheppes, Scheibe et al., 2014 for a similar trial sequence) where participants viewed a dimension (e.g. intelligence) on which they were about to be scored, selected between distraction or reappraisal as a regulation strategy, and then implemented that strategy while waiting to recieve feedback on the corresponding dimension. In sequence, participants also rated how anxious they felt to receive their score on that dimension (i.e. single-trial post-regulation anxiety rating),[5] before viewing the "actual" percentile score (fixed for each dimension and ranging between 65% and 85%). The order of dimensions presentation was randomised across participants. The main outcome of interest was the choice between reappraisal and distraction for each dimension.

Following the emotion regulation trials, participants completed the Rosenberg Self-Esteem Scale (RSES; Rosenberg, 1965), which was internally consistent ($a = .88$).[6]

Data analyses

A multilevel logistic regression analysis was conducted (using glmer function in R, package lme4) to evaluate the effects of self-perceived performance (failure), self-esteem, and the interaction between the two on the choice between regulatory strategies. This analysis is appropriate for modelling binary outcomes (e.g. selecting distraction or reappraisal) from repeated measures data (e.g. with 20 trials nested within person). These data have a two-level structure, where scores can vary from trial to trial (within person), as well as across individuals (or between persons – in the form of random intercept[7]). Almost all of the variation occurred at the trial level, with approximately 4% of variation due to individual differences (intraclass correlation coefficients, ICC = .039).[8]

All effects are reported as odds ratios (ORs), which represent a standard logarithmic transformation of regression coefficients (Agresti, 2007). ORs larger than 1.0 indicate that participants are more likely to select distraction as a regulation strategy. Prior to analysis, the perceived performance variable was reverse coded (where higher values indicate worse performance)[9] and mean-centred by subtracting the sample mean from each performance rating. The self-esteem variable was also mean-centred using the sample mean.

Figure 1. Trial structure of the emotion regulation choice paradigm.
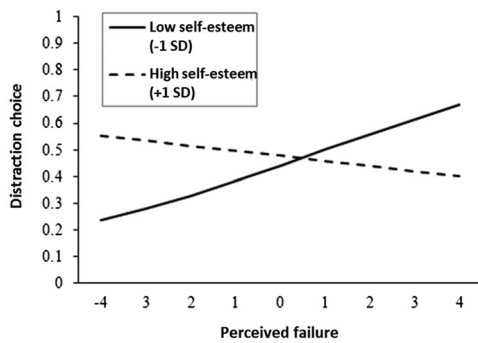
Figure 2. Relationship between perceived performance (x-axis, higher values indicate poor performance or failure) and distraction over reappraisal choice (y-axis) for low (solid line) and high (dashed line) levels of self-esteem.

Results

Descriptives

Overall, participants reported their performance as relatively neutral ($M = 5.25$, SD = 1.95), and chose to reappraise more than distract (reappraisal: 54% of trials; distraction: 46%, SD = 13.37). Participants reported a moderate level of self-esteem (RSES $M = 31.78$, SD = 4.42).

Primary analyses

We found a marginally significant main effect of perceived performance on regulation choice (OR = 1.08, 95% CI = (0.99, 1.18), $p = .08$), which indicates that participants were 1.08 times more likely to distract with each one-point increase in perceived poor performance.

To test our main prediction, we examined whether the effect of performance on regulation choice was moderated by self-esteem. As expected, the interaction between self-esteem and performance was significant (OR = 0.97, 95% CI = (0.95, 0.99), $p < .002$; see Figure 2). Confirming our predictions, follow-up analyses showed that participants with lower self-esteem were more likely to distract as perceived poor performance (failure) increased (OR = 1.31, 95% CI = (1.09, 1.59), $p < .01$). By contrast, participants with higher self-esteem appeared to be less affected by their perceived poor performance, as indicated by a non-significant performance–regulation choice relationship (OR = 0.89, 95% CI = (0.77, 1.04), $p = .14$). Gender did not influence the interaction between self-esteem and performance (OR = 1.12, 95% CI = (0.76, 1.67), $p = .57$).

Discussion

The present study evaluated emotion regulation choices of individuals with varying levels of self-esteem in a real-life evaluative context. Extending our prior findings in non-evaluative contexts, we found that individuals with low (but not high) self-esteem reacted defensively to threat of failure by favouring short-term relief via distraction over the long-term benefit of reappraisal, as perceived poor performance increased.

These findings can be explained by combining our recent theoretical account of emotion regulation choice (Sheppes & Levin, 2013) with conceptual accounts of the influence of self-esteem on reactions to failure. Specifically, when selecting between regulatory strategies, one needs to value the inherent trade-off between the benefit of feeling better in the short run and the cost of not adjusting in the long run. In particular, early disengagement from information regarding one's performance via distraction effectively attenuates potentially negative emotional information, but it does not permit attending to and understanding one's strengths and weaknesses, which in turn prevent future improvement (See Wilson & Gilbert, 2008 for a review). In the present study, we showed that among low self-esteem individuals, an increased doubt in one's performance resulted in succumbing to the short-term benefits of selecting distraction over the long-term benefits of selecting reappraisal. These results are also in accordance with self-esteem conceptual accounts, arguing that low (relative to high) self-esteem individuals are more strongly threatened by perceived failure (e.g. Brown & Dutton, 1995), which leads to defensive reactions that involve disengagement and avoidance (e.g. Baumeister et al., 1989; Cavallo et al., 2012).

In addition to our account, two neighbouring literatures appear very relevant for the present findings. The first involves studies suggesting that low self-esteem individuals are less motivated to regulate their emotions (e.g. Heimpel, Wood, Marshall, & Brown, 2002). We view these studies as more directly related to an identification regulatory stage, which precedes the selection phase we focus on in the present study (see Bonanno & Burton, 2013; Sheppes, Suri, & Gross, 2015 for reviews, and Suri, Whittaker, & Gross, 2015 for empirical findings). Specifically, identification involves (among other things) deciding whether to regulate or not, and selection, which follows a decision to regulate, involves

choosing among available regulatory options. Thus, while the present study provides insights on how individuals varying in self-esteem select between two major regulatory strategies, it does not measure self-esteem differences in the basic motivation to regulate. A further complexity in extrapolating what underlies the motivation of low self-esteem individuals to select distraction lies in the inherent cost–benefit profile of distraction. Specifically, while distraction is more effective than reappraisal in some contexts, which may hint that choosing distraction represents *higher* regulatory motivation, it is also less effortful than reappraisal (Shafir, Schwartz, Blechert, & Sheppes, 2015; Sheppes, Brady, & Samson, 2014), which may hint that choosing distraction actually indicates *lower* regulatory motivation.

The second relevant line of study demonstrates that high self-esteem individuals are characterised by defensive zealous reactions to self-threats, such as mortality salience and personal uncertainty (McGregor & Marigold, 2003; McGregor, Gailliot, Vasquez, & Nash, 2007). While these findings may lead one to speculate that high self-esteem individuals would prefer distraction over reappraisal, McGregor (2006a, 2006b) explicitly mentions that zealous reactions cannot be viewed as a classic distraction. Specifically, the threat-relieving effect of zeal remains effective even after repeated threat reminders, which does not seem to support a classic distraction mechanism.

There are several limitations that should be noted. First, although we created a tightly controlled version of a well-established evaluative context (the TSST), the current design was quite complex. For example, asking participants to rate perceived performance for each evaluative dimension prior to measuring regulatory preferences, enabled customising perceived failure levels, but resulted in a longer and more complicated session. Future studies should consider using normative ratings when these are available.

Second, while self-esteem functions as a central individual difference measure related to self-evaluation, many other important individual difference measures are likely to influence regulatory choices. For instance, in their influential account, Bonanno and Burton (2013) highlight the role of individual regulatory flexibility measures that tap on adaptive variability in regulatory choices across contexts. Future studies should investigate the role of such measures.

Third, while low self-esteem individuals showed a maladaptive pattern of regulatory choices, the

evaluation of clinical populations that are likely to show impaired regulatory choice patterns is clearly needed. For example, repeating the design of the present study with individuals diagnosed with social anxiety may shed light on symptomatology that is associated with a biased reliance on disengagement strategies that offer short-term relief, but that perpetuate a static condition that does not allow future adjustment. Initial support for this direction comes from our finding that participants high in fear of negative evaluation, which is a central element in social anxiety symptoms, were more likely to distract as perceived poor performance increased (see note 6).

Finally, given that trials in the present study were relatively long and complex, we decided not to add measurements of adherence following actual implementation of regulatory choices during the experiment. Nonetheless, we have previously established that during actual implementation, participants closely adhere to their regulatory choices (average agreement ~97%. c.f., Levy-Gigi et al., 2016; Sheppes et al., 2011). Additionally, in an effort to enhance later adherence, in the present study we included a long teaching phase, where participants were asked to talk out loud how they implemented their regulatory choices.

Notes

1. Because this exclusion criterion may be somewhat subjective in nature, we also re-ran the main analyses including these five participants, and results remained essentially unchanged (i.e. the interaction between self-esteem and performance, OR = 0.97, 95% CI = (0.95, 0.99), $p < .001$, as well as the follow-up analyses for lower self-esteem individuals, OR = 1.2, 95% CI = (1.03, 1.41), $p < .02$, and higher self-esteem individuals, OR = 0.89, 95% CI = (0.77, 1.04), $p = .14$).
2. To provide further support for the adequacy of our final sample size, we carried out a simulation-based power analysis for our generalised linear mixed model (see Johnson, Barry, Ferguson, & Müller, 2015 for a full description of the method). Specifically, 1000 simulated data sets were generated randomly, applying the observed effect size of the interaction between self-esteem and performance (beta = −.032) and the present sample size. Mean and standard deviation of self-esteem and performance were taken from the observed data. This analysis indicated that the power of the observed results was high, manifested in an 84% chance of detecting the central interaction described in our article with the present sample size and an alpha of .05.
3. The dimensions (affability, alertness, articulateness, capability, competence, confidence, considerateness, creativity, honesty, innovation, insightfulness, intelligence,

knowledge, peacefulness, persuasiveness, posture, responsibility, sensitivity, tolerance, and trustworthiness) were derived from previous research on evaluative feedback (Kernis & Johnson, 1990; Mansell & Clark, 1999), as well as general parlance.

4. Results are reported without controlling for pre-speech anxiety ratings; however, the main results remain essentially unchanged when including pre-speech anxiety as a covariate (i.e. the interaction between self-esteem and performance, OR = 0.97, 95% CI = (0.95, 0.99), $p < .002$, as well as the follow-up analyses for lower self-esteem individuals, OR = 1.33, 95% CI = (1.11, 1.63), $p < .005$, and higher self-esteem individuals, OR = 0.88, 95% CI = (0.75, 1.02), $p = .09$).

5. At the trial level (within persons), perceived performance was negatively correlated with single-trial post-regulation anxiety ratings ($r = -.29$, $p < .05$), suggesting that reduced perceived performance (failure) is associated with increased negative feelings. Single-trial post-regulation anxiety ratings were included to heighten the salience of our instruction to base regulatory choices on their impact on emotional responses (see Scheibe, Sheppes, & Staudinger, 2015 for a similar inclusion). Post-regulation ratings are not discussed further, because in choice studies they are un-interpretable with regard to differential effectiveness of employing distraction and reappraisal. Specifically, because participants freely choose between reappraisal and distraction, it is impossible to control for initial potential intensity differences between distraction and reappraisal chosen stimuli (see also Scheibe, Sheppes, & Staudinger 2015 for a thorough discussion).

6. Given that we wished to explore the future possibility of repeating the present design with relevant clinical populations suffering from social anxiety disorder, in the end of the experiment participants also completed the Brief Fear of Negative Evaluation (BFNE; Leary, 1983), which measures fear of negative evaluation symptoms. Since these social anxiety symptoms are directly related to self-evaluation (as also manifested in the high correlation with self-esteem, $r = -.60$, $p < .001$), when BFNE was entered as a moderator to our multilevel logistic regression analysis (instead of self-esteem), it significantly interacted with performance (OR = 1.01, 95% CI = (1.005, 1.02), $p < .002$). Similar to the pattern of results observed with the self-esteem measurement, follow-up analyses showed that participants with higher social anxiety symptoms were more likely to distract as perceived poor performance (failure) increased (OR = 1.25, 95% CI = (1.09, 1.44), $p < .002$), whereas those with lower social anxiety symptoms appeared to be less affected by their perceived performance (OR = 0.9, 95% CI = (0.77, 1.05), $p = .18$). In addition, we also administered the State Anxiety Questionnaire (STAI-S; Spielberger, 1983), to be able to control for its potential influence on self-esteem). Importantly, the interaction between self-esteem and performance remained significant when controlling for state anxiety levels (OR = 0.97, 95% CI = (0.95, 0.99), $p < .002$). Participants also completed the emotion regulation questionnaire (Gross & John, 2003).

7. When defining the effects of self-esteem and performance as random, the interaction between self-esteem and performance remained essentially unchanged (OR = 0.96, 95% CI = (0.94, 0.99), $p < .002$).

8. ICCs reflect the proportion of variability in a repeated measure due to between-person variation. For binary outcomes, ICCs are computed as the proportion of between-person variance over the total variance, where the trial-level variance is estimated as $\pi^2/3$ – the standard logistic distribution's variance.

9. Reverse-coding was done to facilitate interpretation of the ORs (to be greater than 1.0) for focal effects.

Disclosure statement

No potential conflict of interest was reported by the authors.

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