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Effects of compassionate thinking on negative emotions

Kohki Arimitsu^{a,b} and Stefan G. Hofmann^b

^aDepartment of Psychology, Komazawa University, 1-23-1 Komazawa, Setagaya, Tokyo 154-8525, Japan; ^bDepartment of Psychological and Brain Sciences, Boston University, Boston, MA 02215, USA

ABSTRACT

The present study compared the effect of compassionate thinking with other methods traditionally used in cognitive behavioural therapy (cognitive reappraisal, responsibility reattribution, and self-deflection). An instructional manipulation was used, and 207 undergraduate students were randomly assigned to one of these thinking styles or a control condition. The results revealed that participants who engaged in compassionate thinking and cognitive reappraisal reported significantly lower levels of negative emotions compared to those in the responsibility reattribution and control conditions. Furthermore, results of hierarchical regression analyses suggested that habitual use of self-compassion reduced negative emotions in all conditions. These findings suggest that self-compassion and reappraisal reduce negative emotions more than reattribution and self-deflection.

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When people make a mistake, they tend to judge themselves negatively and experience negative emotions, such as anxiety, shame, guilt, or regret. Research has demonstrated that self-criticism and the inability to be self-soothing and self-reassuring develop due to early shame memories from a harshly criticising parent, being rejected by a friend, bullying, or failing at something important (Gilbert, 2010). Self-critical thinking is also associated with negative emotions, such as shame, depression, and anger (Gilbert & Miles, 2000), and with various psychological disorders, including social anxiety disorder (Cox, Fleet, & Stein, 2004), mood disorders, and psychiatric disorders (Hutton, Kelly, Lowens, Taylor, & Tai, 2013).

Even though people have shame experiences and self-criticise, they can learn how to treat themselves in a more balanced way, with compassion, focusing on how to improve rather than labelling and berating themselves for past events (Henderson, 2010). Compassion has recently received a great deal of attention with regard to its effect on reducing anxiety and depression. Compassion is defined as the feeling of concern for another, accompanied by a desire to enhance that person's welfare (Goetz, Keltner, & Simon-Thomas, 2010). In Buddhist tradition,

compassion is defined as a sensitivity to the suffering of self and others, with a deep commitment to trying to relieve it (Dalai Lama, 1995), and is also characterised as a mental capacity that empowers all positive states of mind as we awaken to our fullest potential (Makransky, 2012). The effectiveness of compassion on negative emotions has been investigated in three contexts: having compassion for others, receiving compassion from others, and cultivating compassion for oneself (Jazaieri et al., 2013). Self-compassion is defined in terms of three main components: self-kindness versus self-judgement, common humanity versus isolation, and mindfulness versus over-identification (Neff, 2003). Because self-compassionate people accept both the positive and negative aspects of life, when they encounter negative events, such as personal rejection, unfavourable evaluations, academic difficulties, illness, and homesickness, they consider their situation with equanimity and compassion, and consequently can regulate negative affect (Leary, Tate, Adams, Batts, & Hancock, 2007). Similarly, compassion-focused therapy (CFT) emphasises imaging a compassionate self and hearing kind and self-soothing voices from him or her to reduce self-criticism (Gilbert, 2010). According to Gilbert's model, secure

attachment with early caregivers can cultivate self-compassion ability that activates the soothing, contentment, and safe system, but highly self-critical people focus on detecting negative response and threats from others and chronically experience negative emotions. Therefore, training compassionate imagery and kind voice tone is emphasised in CFT.

There is promising evidence for positive effects of self-compassion on self-critical thoughts and related negative emotions. Initially, brief compassion-focused interventions were developed and found to reduce negative emotions in the long term. A brief four-session intervention to enhance self-compassion was associated with reduced self-critical thought (Gilbert & Irons, 2004). Increases in self-compassion using a half hour two-chair dialogue were associated with increased psychological well-being after one month (Neff, Kirkpatrick, & Rude, 2007). A two-week self-soothing imagery intervention reduced shame and skin complaints, but not depression (Kelly, Zuroff, & Shapira, 2009). Writing about recalled shame and experiencing it self-compassionately resulted in less shame and negative affect two months later (Johnson & O'Brien, 2013). There are several long-term interventions aimed at enhancing compassion, leading to reductions in negative emotions (e.g., Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Gilbert, 2010; Jazaieri et al., 2013; Neff & Germer, 2013). However, there are few studies on very short-term effects of compassion-focused intervention on down-regulating negative emotions. In one short-term experimental study, participants who received instructions to experience self-compassion (by describing one's experience, focusing on compassion and mindfulness) reported significantly lower negative affect when faced with a negative event than participants in self-esteem, disclosure, and control conditions (Leary et al., 2007). Self-compassion instructions in a 60-minute experiment also down-regulated induced depressed mood in individuals meeting criteria for major depressive disorder (Diedrich, Grant, Hofmann, Hiller, & Berking, 2014). Training can guide the application of the compassionate image to a distressed situation and reduced negative emotion, increased self-esteem, and decreased paranoid thoughts within an hour (Lincoln, Hohenhaus, & Hartmann, 2013). The short-term effect of self-compassionate thinking is not limited to subjective experiences. Compassion-focused thinking elicited for 120 seconds by a brief instruction was uniquely associated with more subdued tension under the eye (orbicularis oculi) and increased the time between R-R (beat-to-

beat) peaks (vanOyen Witvliet, Knoll, Hinman, & DeYoung, 2010). Self-compassion meditation for three days resulted in diminished sympathetic, cardiac parasympathetic, and subjective anxiety responses to the Trier Social Stress Test (Arch et al., 2014). This experimental evidence is important for understanding the mechanism underlying long-term effects of compassion-focused thinking, but more short-term experimental studies are needed.

Despite these encouraging findings, a number of questions remain. First, it is unclear how compassionate thinking compares to other cognitive strategies typically used in cognitive behavioural therapy (CBT). CBT provides patients with instructions about the process of cognitive reappraisal, and encourages them to find arguments against the maladaptive, negative thoughts. Research has demonstrated that cognitive reappraisal could be effective for counter-acting negative emotions in both short-term experiments and long-term interventions. Cognitive reappraisal was as effective as compassionate reappraisal for reducing negative emotions (Diedrich et al., 2014), and was more effective at reducing anger than attempts to suppress or accept it (Szasz, Szentagotai, & Hofmann, 2011). Moreover, responsibility reattribution using a responsibility pie chart was also found to soothe self-critical thoughts and related negative emotions, such as guilt, shame, and anger (Greenberger & Padesky, 1995). However, to our knowledge, there is no study of the effectiveness of reattribution using a responsibility pie chart.

Cultivating compassionate thinking is better at increasing well-being than exaggerating self-esteem (Fredrickson et al., 2008; Neff, 2011). Although self-affirmation (Taylor & Sherman, 2008) increases self-esteem, people with high self-esteem easily feel depressed or angry with themselves after a failure. Because self-compassion is supposed to make people accept their failure and feel kind to themselves without self-evaluation and social comparison, induced self-compassion might be better for down-regulating negative emotions than self-esteem. Self-deflection thinking is focusing on positive characteristics and reinterpreting the event to feel better about oneself to protect self-esteem. Such induced self-esteem has been shown to be less effective than self-compassion in reducing negative emotions (Leary et al., 2007), but it has not yet been compared with other CBT techniques. Therefore, the present study will examine whether compassionate thinking is an effective technique for down-regulating negative emotions related

to self-critical events, compared to other, more traditional CBT techniques, including cognitive reappraisal, responsibility reattribution, and self-deflection. We hypothesised that compassionate thinking would be the most effective cognitive technique.

In addition, the present study aims to examine how trait self-compassion impacts the relationship between negative emotions and each intervention. It has been found that trait self-compassion does not account for any variance in reduced negative emotions related to negative events after induced self-compassion or self-esteem (Leary et al., 2007). However, because it was also found that higher trait self-compassion was associated with fewer negative emotions (Neff & Germer, 2013), it is possible that trait self-compassion would account for variance in negative emotions in a different experimental setting. It is hypothesised that trait self-compassion, but not trait self-esteem, would down-regulate negative emotions because high self-esteem might be a vulnerability factor for more negative emotions (Neff, 2011). Therefore, it was hypothesised that people high in self-compassion would experience less negative emotions in each condition compared to those low in self-compassion.

Method

Participants and recruitment

Participants were recruited from psychology classes at universities, and 225 undergraduates (34% female) took part for course credit. All participants were Japanese. Participants ranged in age from 18 to 27 years ($M = 19.10$, $SD = 1.08$).

Procedure

Participants were randomly assigned to one of the following five experimental conditions: compassionate thinking, cognitive reappraisal, responsibility reattribution, self-deflection, or control (no instruction). Three participants in the cognitive reappraisal condition, eight in the self-deflection condition, and eight in the control condition were excluded from analysis because of blanks. Initial instructions stated that participants should recall and describe one of their own self-criticising events from their past, and answer questions about how they thought and felt at the time (see trait and dependent variables). Next, participants were asked to complete a condition-dependent writing assignment and answer the same

questions. The entire procedure took 30 minutes. The instructions were sourced from previous studies (compassionate thinking: Gilbert, 2010; Henderson, 2010; cognitive reappraisal and responsibility reattribution: Greenberger & Padesky, 1995; self-deflection: Leary et al., 2007). More specifically, the instructions were as follows:

Compassionate thinking ($n = 45$). *Let's make an alternative thought in a compassionate way rather than in a self-critical way. Think about the qualities you value in compassion and become them as you imagine yourself in the role. Please imagine and try to hear kind voices from the perspective of a compassionate self who is understandable, supportive, kind, and encouraging to you. There are five steps to creating compassionate thoughts. First, accept your emotions. Please do not judge yourself like "I should have done so," "I should not have done so," or "I should feel a certain emotion" (e.g., "I accept that I felt nervous in a public speech today and I worried about others' evaluation like I'm a fool"). Second, please understand why you feel this way (e.g., "It's understandable I feel this way because my mother was so harsh in my childhood"). Third, recognise what you did (e.g., "I have done good work and tried my best"). Fourth, see your goodness (e.g., "I'm glad I tried. That says something about my courage and persistence, and the likelihood that I will meet my goals"). Fifth, cultivate positive emotion (e.g., "I feel safe and soothed. Next time I will be able to do it because I learned a lesson"). Describe how you would say these kind things to yourself from each point of view. Finally, talk to yourself compassionately using kind tones.*

Cognitive reappraisal ($n = 42$). *Please focus on rational thinking instead of judging yourself, and answer the following questions: (a) describe your past experiences that prove your thoughts are not always true, (b) describe how you would tell your family and close friends if you and they have the same negative thoughts, (c) describe what your family and close friends would tell you if they see you are having such negative thoughts, and (d) describe what is contrary to your self-criticising thoughts. Finally, (e) overwrite your self-critical thoughts into rational thoughts.*

Responsibility reattribution ($n = 45$). *First, list all the people and aspects of the situation that were involved, excluding yourself. Put yourself last on the list, then assign percentages that reflect the relative responsibility for the event, again providing your own percentage last. Draw a pie chart to illustrate those percentages, and rethink your self-critical thoughts.*

Self-deflection ($n = 37$). Write down your positive characteristics, followed by a paragraph explaining how what happened was not entirely your fault. Interpret the event in a way that makes you feel better about yourself, and describe why the event does not really indicate anything about the kind of person you are.

Control group ($n = 38$). No instructions were provided.

Trait and dependent variables

Participants completed the Self-Compassion Scale (SCS; Neff, 2003) and Rosenberg Self-Esteem Scale (RSS; Rosenberg, 1965) before being assigned to one of the above conditions. For a manipulation check, participants were asked how self-critical they felt (1 = not at all, 4 = very much) after they recalled the negative event. The short version of the Multiple Mood Scale (MMS; Terasaki, Koga, & Kishimoto, 1991) and the Self-Conscious Emotion Scale (SCES; Arimitsu, 2005) were administered to participants before and after writing. Participants were asked to rate to what degree they experienced each emotion.

The SCS has 26 items and consists of the following six subscales: self-kindness, self-judgement, awareness of common humanity, isolation, mindfulness, and over-identification. Each item is rated on a 5-point scale (1 = almost never, 5 = almost always). The Japanese version of the SCS developed by Arimitsu (2014) was used. Higher scores indicate greater self-compassion. Internal consistency in the current sample was excellent (Cronbach's $\alpha = .93$).

The RSS is a 10-item measure rated on a 5-point scale (1 = strongly disagree, 5 = strongly agree) used to measure global self-esteem. The Japanese version of the RSS developed by Yamamoto, Matsui, and Yamanari (1982) was used. The scale demonstrated good internal consistency in the current sample (Cronbach's $\alpha = .91$).

The MMS-Short form is a 40-item measure rated on a 4-point scale (1 = never felt, 4 = clearly felt), and is designed to assess emotions and moods. The anxiety and boring subscales of the MMS were used; each subscale contains five emotion items (anxious, depressed, tired, and boring). The SCES is a 31-item measure rated on a 4-point scale (1 = never felt, 4 = clearly felt), designed to assess a person's experience of self-conscious emotions. The SCES comprises the following five subscales: shame, embarrassment, shyness, guilt, and regret. Because a principal axis factor analysis revealed that these seven scores formed a single factor, subscale scores

were summed. The total score exhibited excellent internal consistency (Cronbach's $\alpha = .91$).

Ethical considerations

All study procedures were reviewed and approved by the university's institutional review board. Informed consent was obtained from all individual participants included in the study and all relevant ethical safeguards were met in relation to subject rights and protection.

Results

Data analysis strategy

Analyses were carried out using SPSS Version 18. First, we compared pre-intervention differences between the experimental and control groups in negative emotions, trait measures, and the self-criticism level for the recalled events. Second, we used a one-way between groups analysis of covariance (with negative emotion and self-criticism rating at pre-intervention as covariates) to test the main effect of intervention on negative emotions.

Third, we tested the moderating effect of self-compassion using a hierarchical regression analysis. Effect sizes (partial eta-squared) for analyses of covariance of 0.01, 0.06, and 0.14 are considered to reflect small, medium, and large effects, respectively (Cohen, 1988). Cohen's d is presented for t -tests (small effect = 0.20, medium effect = 0.50, large effect = 0.80; Cohen, 1988).

Randomisation

Participants were randomly assigned to one of the five experimental groups (compassionate thinking, cognitive reappraisal, responsibility reattribution, self-deflection, and control). The five groups were comparable in terms of negative emotions experienced, $F(4, 202) = 1.84, p > .12$, partial $\eta^2 = .04$ (small effect), SCS scores, $F(4, 202) = 1.66, p > .16$, partial $\eta^2 = .03$ (small effect), and RSS scores, $F(4, 202) = 1.94, p > .11$, partial $\eta^2 = .04$ (small effect). Furthermore, there was no difference in self-criticism of the recalled event, $F(4, 202) = .54, p > .70$, partial $\eta^2 = .01$ (small effect).

Effects of each condition on negative emotions

A one-way between groups analysis of covariance (with negative emotion and pre-intervention self-criticism

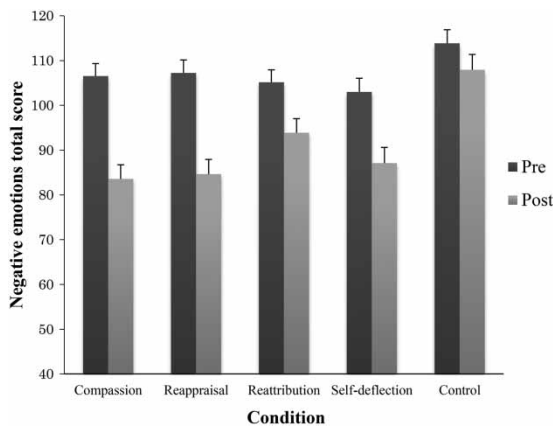


Figure 1. Means and standard errors of total negative emotions scores in each condition. Note: Compassionate = compassionate thinking, Reappraisal = cognitive reappraisal, and Reattribution = responsibility reattribution.

rating as covariates) revealed a significant difference between the five groups post-intervention, $F(4, 200) = 13.27, p < .001$, partial $\eta^2 = .21$ (large effect). Figure 1 depicts the differences between groups before and after intervention. *Post hoc* analyses (Bonferroni test) of the group effect showed that at post-intervention, participants in the compassionate thinking group reported less negative emotions than those in either the responsibility reattribution (mean difference = $-11.54, SE = 2.79, p = .001$) or control groups (mean difference = $-17.81, SE = 2.94, p < .001$). Furthermore, there were significant differences between the cognitive reappraisal group and both the responsibility reattribution (mean difference = $-11.12; SE = 2.85, p = .001$), and control groups (mean difference = $-17.39, SE = 2.98, p < .001$). The control group was also significantly different from the self-deflection group post-intervention (mean difference = $-11.14; SE = 3.11, p = .004$). The effects were large for the compassionate thinking and cognitive reappraisal groups

(95% CI [19.06, 26.90]; $d = 1.34$, 95% CI [18.56, 26.67]; $d = 1.05$, respectively), the effects were medium for the responsibility reattribution and self-deflection groups (95% CI [7.37, 15.21]; $d = 0.54$, 95% CI [11.57, 20.21]; $d = 0.77$, respectively), and the effect was small for the control group (95% CI [1.68, 10.21]; $d = 0.31$).

Correlations

As shown in Table 1, participants' pre-intervention negative emotions related to the self-criticism event were significantly associated with both self-compassion, self-esteem, and self-criticism rating of the recalled event ($r = -.30, -.29$, and $.38$, respectively, all $p < .001$). Similarly, post-intervention negative emotions was also associated with self-compassion, self-esteem, and self-criticism rating of the recalled event ($r = -.27, -.22$, and $.29$, respectively, all $p < .001$).

Effect of self-compassion and self-esteem on decreased negative emotions

Hierarchical regression analyses were conducted to examine whether self-compassion, condition, and their interaction predicted negative emotions post-intervention. Because self-compassion was correlated with self-esteem ($r = .65, p < .001$), the effects of self-esteem were partialled out in the analysis. Self-esteem was entered as a predictor variable in the first step of the model. Dummy coded variables for each experimental group (1 = condition, 0 = other groups) and self-compassion (zero-centred) were entered as predictor variables in the second step of the model. Four condition \times self-compassion interactions were entered as predictor variables in the third step of the model. Negative emotions post-intervention served as the outcome variable. Table 2 shows the results of the hierarchical regression analyses.

Table 1. Correlations, means, and standard deviations of study variables for the full sample.

| | 1 | 2 | 3 | 4 | 5 |
|-------------|---------|---------|--------|---------|------|
| (1) Pre-NE | – | | | | |
| (2) Post-NE | 0.76** | – | | | |
| (3) SCS | –0.30** | –0.27** | – | | |
| (4) RSS | –0.29** | –0.22* | 0.65** | – | |
| (5) SC | 0.38** | 0.29** | –0.21* | –0.23** | – |
| <i>M</i> | 107.10 | 91.13 | 16.61 | 29.89 | 3.44 |
| <i>SD</i> | 18.77 | 22.77 | 3.70 | 7.32 | 0.68 |

Note: Pre = pre-intervention, NE = negative emotions, Post = post-intervention, SCS = Self-Compassion Scale; RSS = Rosenberg Self-esteem Scale, SC = self-criticism rating of the recalled event, *M* = mean, and *SD* = standard deviation.

* $p < .01$.

** $p < .001$.

Table 2. Results of hierarchical regression analyses showing amount of variance in negative emotion at post-intervention accounted for by self-compassion and self-esteem.

| Measures | <i>B</i> | <i>R</i> ² | ΔR^2 | <i>F</i> |
|-----------------------|----------|-----------------------|--------------|----------|
| Step 1 | | 0.05 | – | 10.30* |
| RSS | –0.22* | | | |
| Step 2 | | 0.20 | 0.16 | 7.80** |
| SCS | –0.17* | | | |
| Compassionate | –0.41** | | | |
| Reappraisal | –0.40** | | | |
| Reattribution | –0.22* | | | |
| Self-deflection | –0.30** | | | |
| Step 3 | | 0.22 | 0.01 | 0.82 |
| Compassionate × SCS | 0.01 | | | |
| Reappraisal × SCS | 0.06 | | | |
| Reattribution × SCS | 0.14 | | | |
| Self-deflection × SCS | 0.03 | | | |

Notes: Condition was dummy coded. RSS = Rosenberg Self-esteem Scale, SCS = Self-Compassion Scale, Compassionate = compassionate thinking, Reappraisal = cognitive reappraisal, and Reattribution = responsibility reattribution.

* $p < .05$.

** $p < .001$.

Condition and self-compassion were found to account for 20% of the variance in negative emotions post-intervention, $F(5, 200) = 7.80$, $p < .001$, after partialling out trait self-esteem. Both condition and self-compassion were significantly associated with negative emotions. However, interactions involving condition and self-compassion entered in the third step did not significantly account for additional variance in negative emotions, $F(4, 196) = 0.01$, $p = .52$.

Discussion

The purpose of the present study was to test the effects of compassionate thinking on negative emotions in recalled self-critical events, compared to the effects of other techniques often used in CBT to protect against self-critical thoughts, including cognitive reappraisal, responsibility reattribution, and self-deflection. Compassionate thinking and cognitive reappraisal led to greater reductions in negative emotions than responsibility reattribution or a control condition. Compassionate thinking had the largest effect on negative emotions; the pre- to post-intervention within-group effect size was notably large for compassionate thinking (Cohen's $d = 1.34$), and was significantly different from the control group. Similar results were obtained for the cognitive reappraisal group (Cohen's $d = 1.05$). These findings are consistent with previous short-term experimental research showing that compassionate thinking produces beneficial psychological changes on negative emotions (e.g., Diedrich et al., 2014; Leary et al., 2007). Additionally, the effect sizes for self-deflection

and responsibility reattribution were in the medium range, suggesting that these two strategies were also effective for reducing negative emotions, although the effects were smaller than those for compassionate thinking and cognitive reappraisal. As expected, reattribution had a medium effect on negative emotions after a self-criticising event.

Responsibility reattribution was less effective than compassionate thinking and cognitive reappraisal, although it was similarly aimed at directing participants to find alternative arguments. Responsibility reattribution differed from cognitive reappraisal in that it included reassigning proportions of responsibility for the event and did not include taking somebody else's point of view. It is possible that reattribution is difficult for self-criticising participants because such people tend to blame themselves rather than share responsibility. The present study used the same instructions as Greenberger and Padesky (1995), but additional instructions for the experimental condition would be helpful for encouraging participants to reattribute responsibility for the self-critical event and reduce negative emotions.

Hierarchical regression analyses revealed that the association between self-compassion and negative emotions post-intervention remained significant after controlling for each condition and self-esteem, suggesting that self-compassion was uniquely associated with negative emotions above and beyond the contribution of the four cognitive behavioural techniques and self-esteem. This is consistent with a previous study showing that self-compassion, but not self-esteem, uniquely predicted emotional reactions

to negative events (Leary et al., 2007). It is also consistent with a previous study showing that depression was not reduced more for high versus low self-critics following a self-soothing intervention (Kelly et al., 2009). These results show that both a habitual use of self-compassion and emotion regulation strategies such as compassionate thinking and reappraisal have unique effects on negative emotions. Because compassionate thinking also increases perception of similarity to other people (common humanity) in low self-compassionate participants only (Leary et al., 2007), further study is needed to determine interactions between trait self-compassion and compassionate thinking.

The present study provided empirical evidence for the very short-term effectiveness of compassionate thinking and other traditional CBT techniques in reducing negative emotions, but there are inevitably limitations. First, the present study only examined the effects of these strategies on negative, but not positive, emotions. Self-compassion has been found to foster positive emotions, especially soothing, warm, and safe feelings (Leary et al., 2007; Neff & Germer, 2013). Therefore, it is possible that compassionate thinking is more effective than cognitive reappraisal in promoting positive emotions. Although participants in the present study were asked to hear a kind voice towards themselves, the instructions were short and it is unclear what participants actually imagined. Greater effects on positive and negative emotions might be obtained from self-reassuring visualisation, which includes 1-minute relaxation, 30-second of imagining not getting a grade, 30-second imagining self-supporting, or compassionate part of self, and trying to hear a kind voice, with a manipulation check (Gilbert, Baldwin, Irons, Baccus, & Palmer, 2006). Further research is needed to reveal the unique effect of compassionate thinking on feeling kind or warm toward oneself. Second, because the present study did not offer participants a standard event to elicit self-criticism, the severity of the recalled memory could not be controlled. Even though participants were randomised and remembering a real-life event is good for ecological validity, differences in recalled event severity might have caused differences in negative emotions between groups pre-intervention. Presenting a hypothetical, relatively mild scenario would be better for controlling negative emotions pre-intervention. Third, the sample consisted of Japanese students. There is evidence to suggest that Japanese people tend to be less self-compassionate than

people from the USA (Arimitsu, 2014), and more self-critical than individuals in Western cultures (Kitayama, Markus, Matsumoto, & Norasakkunkit, 1997). Therefore, it is possible that the results are influenced by cultural factors. Further research should be conducted cross-culturally to examine the effects of both compassionate thinking and traditional reappraisal on negative emotions.

Conclusion

These limitations notwithstanding, several strengths of the present study should also be acknowledged. Even though only very short-term effects of the different interventions were previously studied, compassionate thinking was more effective than other emotion regulation strategies in reducing negative emotions after a recalled self-critical event. The present study is the first to show the effectiveness of self-compassion outside Western countries (in Japan). The results replicated the finding that self-compassion as a habitual emotional regulation might serve a regulatory function to reduce negative emotions. A therapeutic implication of the present study is that not only thinking rationally but also cultivating self-compassion might decrease the severity of negative emotions when experiencing a self-criticising event.

Disclosure statement

No potential conflict of interest was reported by the authors.

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