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Cognitions as mediators in the relationship between self-compassion and affect

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Abstract

Previous studies suggest that self-compassion is related to numerous facets of mental health, but the role of cognitions in this relationship remains unknown. To examine the mediating role of cognitions in the relationship between self-compassion and anxiety, depression, and life satisfaction when controlling for self-esteem in Japanese people, we conducted two studies. Study 1 ($N = 231$) examined the relationship between self-compassion and affect by modeling negative automatic thoughts as a mediator; Study 2 ($N = 233$) tested whether positive and negative automatic thoughts mediate this relationship. Results suggested that both self-compassion and self-esteem increased positive automatic thoughts and decreased trait anxiety, whereas only self-esteem increased life satisfaction and decreased depression directly. Positive automatic thoughts increased life satisfaction and decreased depression and trait anxiety, and positive automatic thoughts mediated the relationship between self-compassion and negative affect. These findings suggest that both positive and negative automatic thoughts mediate the relationship between self-compassion and affect in Japanese people.

Keywords

Self-compassion; Self-esteem; Automatic thoughts; Anxiety; Depression; Life satisfaction

1. Introduction

Compassion refers to one's desire to alleviate another's suffering, and loving-kindness denotes one's wish for happiness to replace another's unhappiness (Salzberg, 1995). Neff (2003) combined the concepts of compassion and loving-kindness into the single concept of self-compassion. Self-compassion comprises three components: self-kindness versus self-judgment, common humanity versus isolation, and mindfulness versus over-identification

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Ethical considerations

The institutional review board of Komazawa University reviewed and approved the protocol of this study. This study was carried out in accordance with the ethical standards outlined by the American Psychological Association (APA) and Japanese Psychological Association (JPA). Informed consent was obtained from all participants before the initial assessment, and all relevant ethical safeguards were met in relation to subject rights and protection.

(Neff, 2003). Self-compassion is defined as ‘being open to and moved by one’s own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, non-judgmental attitude toward one’s inadequacies and failures, and recognizing that one’s own experience is part of the common human experience’ (Neff, 2003, p. 224).

1.1. Self-compassion and self-esteem

While self-compassion is often confused with self-esteem, the concepts are distinct (Neff, 2003). Self-compassion is based on feelings of concern and non-judgmental understanding, whereas self-esteem is based on positive self-evaluation. Self-esteem represents an evaluation of superiority/inferiority that helps one establish social rank stability and pursue goals (Gilbert & Irons, 2005). Neff and Vonk (2009) revealed that, compared to global self-esteem, self-compassion had a stronger negative association with social comparison, public self-consciousness, self-rumination, anger, and need for cognitive closure. The study also found that self-compassion and self-esteem were statistically equivalent predictors of happiness, optimism, and positive affect. Leary, Tate, Adams, Allen, and Hancock (2007) showed that participants high in self-compassion experienced fewer negative emotions than did participants high in self-esteem after receiving unflattering feedback.

1.2. Self-compassion and mental health

Over the last decade, much evidence has emerged that self-compassion is positively associated with positive affect, well-being, and psychological adjustment; and negatively related to negative affect and psychological disorders. Similarly, Neff, Rude, and Kirkpatrick (2007) found that self-compassion is positively associated with happiness, optimism, positive affect, wisdom, personal initiative, curiosity and exploration, agreeableness, extroversion, and conscientiousness; and negatively with negative affect and neuroticism. Finally, Barnard and Curry (2011) reviewed a variety of studies and concluded that self-compassion is positively related to well-being and happiness and negatively associated with negative affect, depression, and anxiety.

1.2.1. Cognition as mediators between self-compassion and negative mental health—However, the factors that mediate the relationship between mental health and self-compassion are less well understood. As for the relationship between self-compassion and negative emotion, Gilbert and Procter (2006) proposed a model that explains shame and self-criticism, which are the opposite of self-compassion, in terms of threat and safety. This model provides evidence that self-criticizing thought mediates the relationship between self-correction, self-persecution, and depression (Gilbert, Clarke, Hempel, Miles, & Irons, 2004); that self-criticizing thought influences the association between parental rejection and depression (Irons, Gilbert, Baldwin, Baccus, & Palmer, 2006); and that self-criticism increases loneliness via self-silencing, which is the tendency to inhibit one’s self-expression and action to avoid conflict and the possible loss of a relationship (Besser, Flett, & Davis, 2003). Self-criticizing thoughts have been shown to increase with rumination (Lyubomirsky, Tucker, Caldwell, & Berg, 1999), and self-compassion has been shown to be negatively associated with rumination and thought suppression (Neff, 2003). Raes (2010) examined the mediating effects of rumination and worry in the relationship between self-compassion,

depression, and anxiety, and showed that rumination, but not worry, emerged as a significant mediator between self-compassion and anxiety and depression. Johnson and O'Brien (2013) showed that rumination, self-esteem, and shame were significant mediators between self-compassion and depression. In a study of outpatients with depression, Krieger, Altemeyer, Baetig, Doerig, and Holtforth (2013) found that rumination and avoidance mediate the relationship between self-compassion and depressive symptoms. Specifically, results showed that symptom-focused rumination and cognitive and behavioral avoidance mediated the relationship between self-compassion and depressive symptoms. Thus, the abovementioned studies show that self-compassionate individuals tend to be less ruminative than those who lack self-compassion. However, the relationship between negative automatic thoughts and self-compassion has not been examined. Negative automatic thinking is a broader concept than self-criticizing thoughts because it includes not only negative thoughts about oneself, but also of threats posed by others, future expectations, and other factors (Fukui, 1998). Nolen-Hoeksema and Plomin (2004) suggest that rumination may contain negative themes similar to those of automatic thoughts. These studies suggest that negative automatic thoughts may also mediate the relations among self-compassion, depression, and anxiety. The present study examines whether negative thinking serves as a mediator in the relationship between self-compassion, anxiety, and depression.

1.2.2. Self-compassion and positive mental health—As for the relationship between self-compassion and positive mental health, self-compassion is believed to increase positive affect and well-being through its association with three traits: self-kindness, common humanity, and mindfulness (Neff, 2003). There is some evidence that one's life satisfaction, which is an indicator of subjective well-being, would increase following the adoption of a compassionate and mindful perspective (Neff & Germer, 2013). Similarly, Allen and Leary (2010) showed that self-compassion increases the likelihood that one will employ a non-avoidance coping strategy, such as positive cognitive reframing or problem solving, to address negative events, and such a coping style may facilitate well-being. Breines and Chen (2013) showed that people with high self-compassion are more motivated than people with high self-esteem to improve personal weaknesses, rectify moral transgressions, and challenge themselves. These results suggest that self-compassion promotes healthy coping behaviors and self-improvement, which protect against negative emotions and facilitate well-being. Another way in which self-compassion may cultivate positive affect and well-being is related to Loving Kindness Meditation (LKM; Hofmann, Grossman, & Hinton, 2011). The concept of loving-kindness overlaps with the concept of self-compassion. This practice has been demonstrated to enhance positive emotions, increase life satisfaction, increase psychological resources for dealing with negative emotions, and promote psychological recovery (Fredrickson, Cohn, Coffey, Pek, & Finkel, 2008; Johnson et al., 2009). In particular, Fredrickson's research showed that compassion toward oneself could increase positive emotions and resources that weaken negative emotions, and this cycle results in increased well-being.

1.2.3. Cognition as mediators between self-compassion and positive mental health—Finally, another possible mediator between self-compassion and well-being may be positive automatic thoughts. Positive automatic thoughts have been found to be inversely

related to negative automatic thoughts, depression, and negative affect; and positively related to positive affect and life satisfaction (Burgess & Haaga, 1994; Ingram, Kendall, Siegle, Guarino, & McLaughlin, 1995; Ingram & Wisnicki, 1988; Jolly & Wiesner, 1996). Positive automatic thoughts were unrelated to anxiety when depression was controlled, but significantly related to depression when anxiety was controlled (Boelen, 2007; Burgess & Haaga, 1994; Jolly & Wiesner, 1996). These results are consistent with hypotheses about the relationship between positive and negative affect and their role in psychopathology (Hofmann, Sawyer, Fang, & Asnaani, 2012). It can also be hypothesized that self-compassion increases positive automatic thoughts, which augment positive affect and life satisfaction, by allowing one to focus on both good and bad things in a non-judgmental way and perceive one's positive qualities, thus increasing the likelihood of positive automatic thoughts. However, there has been no research on the potential pathways through which self-compassion may lead to or increase life satisfaction. Recently, research suggests that self-compassion is effective in the treatment of mental health problems such as depression. Compassion-Focused Therapy (CFT; Gilbert & Procter, 2006) has been shown to reduce negative affect, and the Mindful Self-Compassion program (MSC; Neff & Germer, 2013) may promote positive affect and enhance well-being. However, despite the success of these treatments, it is still unclear how self-compassion influences positive automatic thoughts and how positive automatic thoughts mediate the relationship between self-compassion and mental health. Uncovering the ways in which self-compassion and positive automatic thoughts enhance well-being and reduce depression and anxiety will facilitate our understanding of the clinical effects of self-compassion training on anxiety and depression. Thus, the present study focuses on positive automatic thoughts as a mediator.

1.3. The present study

The first aim of the present study was to test the hypothesis of whether negative automatic thoughts mediate the relationship between self-compassion, anxiety, and depression when controlling for self-esteem (Hypothesis 1). The aims of the second study were to replicate the results of the first and to expand the range of instruments employed by including measures of positive automatic thoughts and life satisfaction. We predicted that both positive and negative automatic thoughts would mediate the relationship between self-compassion and affect as well life-satisfaction when controlling for self-esteem (Hypothesis 2).

2. Study 1

2.1. Methods

2.1.1. Participants—Participants were 231 Japanese undergraduate students (99 women and 130 men; 2 unknown) who completed the consent form and questionnaires in a classroom setting and outside of class in exchange for extra credit. It took participants between 20 and 35 min to complete all the questionnaires. The mean age of the sample was 19.11 years ($SD = .88$).

2.1.2. Measurement

2.1.2.1. Self-Compassion Scale (Neff, 2003): The Self-Compassion Scale (SCS) has 26 items and consists of six sub-scales: self-kindness, self-judgment, awareness of common humanity, isolation, mindfulness, and over-identification. Each item is rated on a 5-point scale (1 = *almost never* to 5 = *almost always*). Higher scores indicate greater self-compassion. The Japanese Version of the SCS was developed by Arimitsu (2014), and was used in the present study. The scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .83$).

2.1.2.2. Rosenberg Self-Esteem Scale (RSS; Rosenberg, 1965): The RSS is a 10-item measure rated on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*). The RSS measures global self-esteem. The Japanese Version of the RSS was developed by Yamamoto, Matsui, and Yamanari (1982), and was used in the present study. The scale demonstrated good internal consistency in the current sample (Cronbach's $\alpha = .84$).

2.1.2.3. Depression Anxiety Cognition Scale (DACS; Fukui, 1998): The DACS is a 50-item measure of negative automatic thoughts in Japanese and consists of five sub-scales: future denial, threat prediction, self-criticism, past denial, and fear of rejection. Respondents rate each item on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) based on the extent to which they experienced the particular thought in the preceding two or three days. In the present study, the five subscales were summed to yield a total score. The DACS has good test-retest reliability and internal consistency, and the scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .97$).

2.1.2.4. Spielberger Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, & Lushene, 1970): The STAI-T form is a 20-item measure of trait anxiety. Each item is rated on a 4-point scale (from 1 = *almost never* to 4 *almost always*). The Japanese Version of the STAI-T form was developed by Koga (1980) and used in the present study. The scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .88$).

2.1.2.5. Beck Depression Inventory-II (BDI-II; Beck, Steer, & Brown, 1996): The BDI-II is a well-known 21-item measure of depression. The Japanese Version of the BDI-II was developed by Kojima et al. (2002), and was used in the present study. The test-retest reliability, internal consistency, and validity of the Japanese Version of the BDI-II are well established. The scale demonstrated strong internal consistency in the current sample (Cronbach's $\alpha = .91$).

2.1.3. Statistical analyses—The analyses were conducted using SPSS and AMOS. To test the mediational role of negative automatic thoughts, structural equation modeling was used. Model fit was assessed using the goodness of fit index (GFI), comparative fit index (CFI), and root mean square error of approximation (RMSEA), based on the recommendations of Hu and Bentler (1999). Good fit is indicated by values greater than or equal to .95 for the GFI, CFI, and NNFI, and less than or equal to .06 for the RMSEA (Hu & Bentler, 1999).

2.2. Results

2.2.1. Correlation analyses—Table 1 presents means, standard deviations, and intercorrelations for all variables. As expected, self-compassion was negatively associated with negative automatic thoughts, anxiety, and depression ($p < .01$). The correlation pattern was very similar to that of self-esteem ($p < .01$).

2.2.2. Mediation analyses—Structural equation modeling was used to study how negative automatic thoughts mediate the relationship among self-compassion, self-esteem, anxiety, and depression. Figure 1 illustrates the model and its structural paths. There was an overall direct and indirect effect from self-compassion and self-esteem to negative automatic thoughts, anxiety, and depression. All paths were significant (range = $-.14$ to $-.53$ and $.29$ to $.42$, all $p < .05$). The estimated model was a perfect fit to the data [$\chi^2(df = 0) = .00$; CFI = 1.00 ; GFI = 1.00] because it was a recursive model.

The analysis showed that negative automatic thoughts significantly mediate the relationship among self-compassion, self-esteem, anxiety, and depression. These paths remained significant even though the covariance between self-compassion and self-esteem and their direct effects were removed. Negative automatic thoughts were positively associated with anxiety and depression. Self-compassion was shown to directly decrease anxiety and depression, as was self-esteem.

2.3. Discussion

In Study 1, it was examined whether negative automatic thoughts mediate the relationship between self-compassion, anxiety, and depression controlling self-esteem. Results indicated the following: (1) self-compassion and self-esteem directly decreased anxiety and depression; (2) negative automatic thoughts increased anxiety and depression; and (3) negative automatic thoughts played a mediating role between self-compassion, self-esteem, anxiety, and depression. These results are concordant with previous findings that suggested an association between negative automatic thoughts, depression, and anxiety (Hallion & Ruscio, 2011), and a mediational role of rumination between self-compassion and depression (Johnson & O'Brien, 2013; Krieger et al., 2013; Raes, 2010) and low self-esteem and depression (Kuster, Orth, & Meier, 2012).

Structural equation modelling (SEM) revealed direct and indirect effects of self-compassion on anxiety and depression, even after controlling for the effects of self-esteem, suggesting that self-compassion has adaptive functions that are independent of self-esteem. This possibility was hypothesized and demonstrated in the present study; thus, the present findings contribute to a theory of self-compassion. Traditional Buddhist LKM theory states that people will be able to feel connectedness to other human beings and experience more positive and less negative affect if they extend kindness to all beings, including oneself (Salzberg, 1995). The unique variance of self-compassion to negative automatic thought demonstrated that happiness is likely achieved through means other than increasing self-esteem. To confirm this possibility, Study 2 examined the mediating influence of positive automatic thought and well-being.

3. Study 2

The second aim of the present study is to reveal the mediating status of positive and negative automatic thoughts (Hypothesis 2). Based on the results of Study 1 and previous studies (Burgess & Haaga, 1994; Hofmann et al., 2012; Ingram et al., 1995; Jolly & Wiesner, 1996), it is assumed that positive automatic thoughts mediate the relationship between self-compassion, anxiety, depression, and life satisfaction when controlling for self-esteem.

3.1. Methods

3.1.1. Participants—Participants were 233 Japanese undergraduate students (66 women and 167 men) who completed the consent form and questionnaires in a classroom setting and outside of class in exchange for extra credit. It took participants between 30 and 45 min to complete all the questionnaires. The mean age of the sample was 19.00 years ($SD = .97$).

3.1.2. Measurement

3.1.2.1. Self-Compassion Scale (Neff, 2003): The structure of the SCS is described in the Section 2.1 of Study 1. The scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .89$).

3.1.2.2. Rosenberg Self-Esteem Scale (RSS; Rosenberg, 1965): The structure of the RSS is described in the Section 2.1 of Study 1. The scale demonstrated good internal consistency in the current sample (Cronbach's $\alpha = .82$).

3.1.2.3. Depression Anxiety Cognition Scale (DACS; Fukui, 1998): The structure of the DACS is described in the Section 2.1 of Study 1. This scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .95$).

3.1.2.4. The Positive Automatic Thought Scale (PATS; Fukui, 2005): The PATS is a 29-item self-report inventory in Japanese and consists of six sub-scales: reliance on positive evaluation, positive evaluation of life, reliance on others, amount of spare time, high motivation, and positive inclination. Respondents rate each item on a 5-point scale (1 = *strongly disagree* to 5 = *strongly agree*) based on the extent to which they experienced the particular thought in the preceding two or three days. In the present study, the five subscales were summed to create a total score. The PATS has good test–retest reliability and internal consistency, and the scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .92$).

3.1.2.5. Spielberger Trait Anxiety Inventory (STAI; Spielberger et al., 1970): The STAI is described in the Section 2.1 of Study 1 and demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .84$).

3.1.2.6. Beck Depression Inventory-II (BDI-II; Beck et al., 1996): The BDI-II is described in the Section 2.1 of Study 1 and demonstrated strong internal consistency in the current sample (Cronbach's $\alpha = .89$).

3.1.2.7. The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985): The SWLS is a short 5-item instrument designed to measure global cognitive judgments of satisfaction with one's life. The scale demonstrated excellent internal consistency in the current sample (Cronbach's $\alpha = .79$).

3.2. Results

3.2.1. Correlation analyses—Table 2 presents means, standard deviations, and intercorrelations for all variables. As expected, self-compassion was negatively associated with negative automatic thoughts, anxiety and depression, and positively associated with positive automatic thoughts and life satisfaction ($p < .01$). The pattern of correlations was very similar to that of self-esteem ($p < .01$).

3.2.2. Mediation analyses—SEM was used to study how positive and negative automatic thoughts mediate the relationships among self-compassion, self-esteem, anxiety, depression, and life satisfaction. Figure 2 illustrates the model and its structural paths. Results indicated an overall direct and indirect effect of self-compassion and self-esteem on positive and negative automatic thoughts, anxiety, depression, and life satisfaction. The model includes covariance between self-compassion and self-esteem, positive and negative automatic thoughts, and anxiety and depression. The estimated model was an adequate fit to the data [$\chi^2(df = 2) = .639, p = .72$; RMSEA = .000 (90% CI = .00–.09, p -value for test of close fit = .83); CFI = 1.00; GFI = .999]. The path between self-compassion and negative automatic thoughts was significant and negative ($-.29, p < .01$). Negative automatic thoughts were significantly associated with anxiety and depression (.15 and .32, respectively, $p < .01$). Positive automatic thought was inversely related to anxiety and depression ($-.27$ and $-.25$, respectively, $p < .01$), and positively associated with life satisfaction (.35, $p < .01$). Self-compassion was only directly associated with anxiety ($-.26, p < .01$), although self-esteem was directly associated with anxiety, depression, and life satisfaction ($-.29, -.26, .34$, respectively, $p < .01$). The significant paths differed from those of Study 1: self-compassion was not directly related to depression.

3.3. Discussion

The aim of the present study was to explore the direct and indirect effects of self-compassion on anxiety, depression, and life satisfaction by modeling automatic thoughts as a mediator. Positive automatic thoughts were shown to mediate the relationship between self-compassion and affect, as measured by anxiety, depression, and life satisfaction, even when controlling for self-esteem. Negative automatic thinking remained a mediator between self-compassion and anxiety and depression when the effects of positive automatic thoughts were partialled out. These results are consistent with those of previous studies (Johnson & O'Brien, 2013; Krieger et al., 2013; Neff, 2003; Raes, 2010).

The relationships between self-compassion and other constructs were spurious because self-compassion was highly correlated with self-esteem (Arimitsu, 2014; Leary et al., 2007; Neff, 2003, 2011; Neff & Vonk, 2009; Petersen, 2014). Thus, in the present study, level of self-esteem was controlled to determine whether self-compassion still had a significant relationship with automatic thoughts and mental health. SEM revealed that positive and

negative automatic thoughts still mediated the relationships among self-compassion, anxiety, depression, and life satisfaction when controlling the covariance between self-compassion and self-esteem ($r = .67, p < .01$). These findings support the notion that self-compassion is not identical to self-esteem (Neff, 2003) and suggest that increasing both self-compassion and self-esteem would lead us to experience more positive and fewer negative automatic thoughts. The path from self-esteem to positive automatic thoughts supports findings from previous studies suggesting a relationship among self-esteem, negative automatic thoughts, depression, and anxiety (Hallion & Ruscio, 2011; Kuster et al., 2012). This relationship is consistent with the theory of self-compassion (Neff, 2003, 2011; Neff & Vonk, 2009). Self-esteem can increase subjective well-being because it reflects the positive self-view derived from achievement or acquisition. At the same time, self-compassion can increase subjective well-being because it reflects a perspective in which both good and bad aspects of the self are accepted. Moreover, self-compassion leads people to feel more connected with others and consequently less isolated (Neff, 2003).

It is noteworthy that self-compassion was not directly related to depression, but it was directly related to anxiety when positive and negative automatic thoughts were included as mediators, as shown in Study 2. The results of Study 1 showed that self-compassion has a significant direct path to both anxiety and depression when negative automatic thinking is the only mediator. This direct path could be explained because self-compassion encompasses strategies such as mindfulness and the employment of psychological resources other than the control of automatic thoughts to cultivate happiness and decrease depression. Study 1 replicated the previous finding that self-compassion has a significant direct effect on depression and anxiety when controlling for rumination as a mediating variable in undergraduate students (Raes, 2010). However, these results were inconsistent with those of Study 2 and Krieger et al. (2013) regarding the direct effect of self-compassion on depression. In depressive patients, it was revealed that self-compassion had no direct effect on depression when rumination and avoidant behavior were the mediating variables (Krieger et al., 2013). These results suggest that the direct relationship between self-compassion and depression would disappear upon the inclusion of positive automatic thought as a mediator in a research sample of patients with depression. Since this is just an assumption, further work is needed to determine factors that affect the relationship between self-compassion and depression.

It is also noteworthy that positive automatic thoughts mediated the relationship between self-compassion and life satisfaction, and self-compassion did not directly relate to life satisfaction. This is a unique contribution of the present study because previous studies have shown a positive correlation between self-compassion and well-being (Neff, 2003; Neff & Vonk, 2009), but have not focused on the direct and indirect effects of self-compassion on life satisfaction. These results suggest that there are other mediators between self-compassion and well-being. For example, self-regulation has been proposed as a mediator in previous studies (Neff, Hsieh, & Dejitterat, 2005; Neff, Kirkpatrick, & Rude, 2007). These studies revealed that self-compassion facilitates disengagement from unproductive health-related goals because self-compassionate people set goals that directly promote their well-being. Although the relationship between self-regulation and well-being has not been

revealed in those studies, it could be considered that self-regulation mediates the relationship between self-compassion and well-being. As for negative automatic thoughts, several studies also suggest that emotion regulation is a mediator between self-compassion and health measures. Since self-compassionate people accept both the positive and negative aspects of life, when they encounter troubles such as personal rejection, unfavourable evaluations, academic difficulties, illness, and homesickness, they consider their situation with equanimity and can consequently regulate negative affect (Allen & Leary, 2010; Leary et al., 2007; Neff, 2011; Terry, Leary, & Mehta, 2013). Diedrich, Gran, Hofmann, Hiller, and Berking (2014) showed that self-compassion was more effective than acceptance, but not reappraisal, in patients with high depressed mood. These studies suggest that self-compassion as an emotion regulation skill leads one to replace negative automatic thoughts with compassionate thoughts before a reduction in depression occurs.

The present results are also consistent with previous findings that positive automatic thoughts are inversely related to negative automatic thoughts, depression, and negative affect; and positively related to positive affect and life satisfaction (Burgess & Haaga, 1994; Ingram et al., 1995; Jolly & Wiesner, 1996). However, the present study showed a negative association between positive automatic thoughts and anxiety, even after controlling for depression, which is inconsistent with previous studies (Boelen, 2007; Burgess & Haaga, 1994; Jolly & Wiesner, 1996). This difference may have been due to the use of different questionnaires to assess anxiety [STAI (present study), Symptom Check List (Boelen, 2007), Beck Anxiety Inventory (Burgess & Haaga, 1994; Jolly & Wiesner, 1996)]. Moreover, positive automatic thinking was assessed using the PATS (Fukui, 2005) in the present study, whereas previous studies used the ATQ-P (Burgess & Haaga, 1994; Ingram et al., 1995; Jolly & Wiesner, 1996). These different procedures may have resulted in the distinct causal relationships observed between anxiety and positive automatic thoughts.

The direct effects of self-esteem on anxiety, depression, and life satisfaction remained significant when controlling for self-compassion, and positive and negative automatic thoughts. These results are consistent with previous reports (Diener & Diener, 1995; Kuster et al., 2012; Neff, 2003; Neff & Vonk, 2009; Sowislo & Orth, 2013) showing that self-esteem is a strong predictor of anxiety, depression, and well-being. However, while high self-esteem has been shown to promote personal growth and expansion, it also leads people to avoid activities and situations that threaten the ego (Pyszczynski, Greenberg, & Goldebnberg, 2003). To maintain a high level of self-evaluation, people with high self-esteem tend to excessively attend to others' evaluations and feel anxious or attacked when they are evaluated poorly. Neff (2003) showed that self-esteem had a stronger negative association with social comparison, self-evaluative anxiety, anger, and closed-mindedness compared to self-compassion. While the negative aspects of self-esteem should be considered in future studies, the present study showed that self-esteem directly enhances subjective well-being. However, there is a possibility that self-esteem actually does not predict negative automatic thoughts. Leary et al. (2007) found that when controlling for self-esteem and narcissism, high self-compassion predicted less catastrophizing, less personalizing, greater equanimity, and fewer extreme behavioral inclinations. By contrast, self-esteem did not account for unique variance when controlling for self-compassion and narcissism. This issue should be examined in future research. Self-compassion, on the other

hand, refers to the acceptance of both the positive and negative aspects of the self, which does not require personal success or social comparison. Thus, self-compassion has been shown to be associated with stable feelings of self-worth and self-acceptance (Neff, 2003; Neff & Vonk, 2009). This evidence suggests that self-acceptance should be included in the relationship between self-compassion, self-esteem, and positive and negative aspects of mental health. Moreover, some research suggests that positive emotion tends to be unstable in those with high self-esteem, but stable in those with high self-worth (Kernis, 2005) or self-compassion (Neff & Vonk, 2009). The differential effects of self-compassion and self-esteem might emerge through a longitudinal study that includes variables pertaining to the stability or instability of self and affect.

4. General discussion

The results of the present study have significant theoretical and clinical implications, as they suggest that both positive and negative automatic thoughts mediate the relationship between self-compassion, anxiety, depression, and life satisfaction. According to the proposed model by Hofmann et al. (2012), positive affect decreases the influence of negative affect, encourages new behavior, facilitates social relationships, and lowers the risk for emotional disorders. The present study suggests that positive cognitions should be added to this model and offers evidence of self-compassion as an affective style. This model predicts that increased self-compassion would result in increased positive affect, decreased negative affect, and fewer mental disorders. Evidence suggests that LKM enhances positive affect and well-being, and decreases depression in a normal population (Fredrickson et al., 2008; Neff & Germer, 2013); decreases posttraumatic stress disorder (PTSD) and depressive symptoms in veterans with PTSD (Kearney et al., 2013); and effectively treats psychosis (Johnson et al., 2011; Laithwaite et al., 2009). However, these studies did not demonstrate that enhanced self-compassion and compassion for others are associated with increased positive and decreased negative thoughts. The present study advances previous studies because it provides evidence for the role of positive thoughts. The results of the present study have important clinical implications, as they suggest that both enhancing self-compassion and increasing positive automatic thoughts and positive affect might improve the efficacy of treatment for anxiety and depression. Assessing positive automatic thoughts and positive affect might reveal how well self-compassion training works for patients. If both therapist and patient regularly monitor the patient's degree of self-compassion and positive thought, they will be able to detect an ineffective strategy and explore other means of cultivating self-compassion, if needed. Future research should assess positive and negative thoughts as potential mediators in treatment focused on self-compassion and explore the contribution of self-compassion to the process of reducing anxiety and depression and enhancing well-being through thought modification.

The present study showed that SCS scores only predicted 13–42% of the variance in anxiety, depression, and life satisfaction. Thus, automatic thoughts are not the only means in which to enhance well-being. For example, kindness toward oneself and others has been shown to increase positive affect and enhance resources for life satisfaction (Fredrickson et al., 2008). Engaging in kind acts toward others has been shown to increase positive affect and improve relationship satisfaction in socially anxious people (Alden & Trew, 2013). The present

findings suggest that positive affect and kind behavior toward others may be potential mediators in the relationship between self-compassion and life satisfaction, but further study is necessary.

The present study offers support for the relationship between self-compassion and automatic thoughts, and mental health-related factors, such as anxiety, depression, and life satisfaction, in individuals residing outside of the USA and UK. The relationship between self-compassion and depression (Arimitsu, 2014; Yamaguchi, Kim, & Akutsu, 2014), and between automatic thoughts and depression (Nishikawa, Matsunaga, & Furutani, 2014; Takano & Tanno, 2009), were replicated in the present study. These results suggest that there might be no cultural differences in the relationships among self-compassion, positive and negative thought, and mental health, even though self-compassion in the Japanese population was lower than in the United States (Arimitsu, 2014). This suggests the concept of self-compassion (Neff, 2003) and the emotion dysregulation model of mood and anxiety disorders (Hofmann et al., 2012) can be applied to both the US and Japan. In contrast to American culture, the Japanese culture is highly interdependent (Kitayama & Karasawa, 1997). There are considerable issues concerning the relationship between the interdependent self, happiness, and well-being. Hitokoto and Uchida (2014) proposed the concept of interdependent happiness, which would be attained interdependently, and revealed that interdependent happiness had a significantly larger effect size than did self-esteem on subjective well-being in Japanese students, but not in American students. Moreover, East–West cultural differences in dialectical emotions have been demonstrated: both positive and negative emotions were experienced more moderately by Japanese individuals than by Americans (Miyamoto & Ryff, 2011). These results suggest that the amount of variance in happiness and well-being that is explained by self-esteem or self-compassion might differ between the two cultures.

4.1. Limitations

There were several limitations of the present study. First, participants of the present study were all nonclinical and undergraduate students. Participants of other psychological interventions were from geographically diverse areas and typically middle-aged adults (Jazaieri et al., 2013; Neff & Germer, 2013). Compassion-focused psychotherapy has also been used to treat patients with psychosis or PTSD (Braehler et al., 2013; Gilbert & Procter, 2006; Kearney et al., 2013). Clinical populations are also likely to yield data that differ from that of a normal population, such as an observed direct effect of self-compassion on depression in depressed patients (Krieger et al., 2013). Thus, the present sample might limit the generalizability of the results and the implications for psychological interventions. Moreover, undergraduate students are in no way representative of the average human being. The relationship between self-compassion and subjective well-being has been found in adolescents, adults (Neff & McGeehee, 2010; Wei, Liao, Ku, & Shaffer, 2011), and older adults (Phillips & Ferguson, 2013). However, differences in the association between self-compassion and compassion for humanity, empathetic concern, and altruism have been found among adults, but not undergraduates (Neff & Pommier, 2013). Further, the relationship between self-compassion and well-being is not significant in old adults with poorer physical health (Allen, Goldwasser, & Leary, 2012). These results suggest a possible

role of development in the relationship between self-compassion and well-being. Thus, future studies should explore the relationship between self-compassion and mental health from a developmental perspective. Second, since the present study was a correlational design, interpretations of the SEM results should be considered carefully, as this method does not precisely assess causality. The present study confirmed the postulated relationship between self-compassion, thought, and affect, but the results do not guarantee an empirical relationship. Replication of the present findings in a clinical population and middle-aged sample is necessary; further, a longitudinal research design should be employed. Third, the choice of measures made it difficult to compare the present results with those of previous studies. The DACS and the PATS, which assess automatic thoughts, were administered because these questionnaires are based on experiences common to the participants' own culture, were standardized with the native language, and have good reliability and validity. However, it is possible that different questionnaires assessing the same concepts might have impacted the results. Thus, efforts should be made to standardize questionnaires that assess automatic thoughts so that cross-cultural differences in the relationship between self-compassion, thought, and affect can be adequately assessed.

4.2. Conclusion

These limitations notwithstanding, the present study extends the findings of previous studies. It is revealed that both positive and negative automatic thoughts mediate the relationship between self-compassion and positive and negative affect. Self-compassion might serve a regulatory function to reduce anxiety and depression and enhance well-being. A therapeutic implication of the present study is that cultivating self-compassion might decrease the severity of anxiety and depression symptoms by increasing positive thought and decreasing negative thoughts.

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Fig. 1. Standardized parameter estimates of the structural equation model that negative automatic thoughts mediate the relationship between self-compassion, self-esteem, anxiety, and depression. $^*p < .05$, $^{**}p < .01$.

Fig. 2.

Standardized parameter estimates of the structural equation model that positive and negative automatic thoughts mediate the relationship between self-compassion, self-esteem, anxiety, depression, and life satisfaction. $*p < .01$.

Table 1

Intercorrelations, means, and standard deviations for scores on the SCS, RSS, DACS, STAI, and BDI-II.

Measure	Means	(SD)	1	2	3	4	5
1. SCS	17.35	(3.04)	–				
2. RSS	30.23	(7.46)	.63*	–			
3. DACS	140.18	(35.67)	–.61*	–.70*	–		
4. STAI	51.65	(10.30)	–.72*	–.70*	.71*	–	
5. BDI-II	13.94	(9.87)	–.50*	–.54*	.62*	.64*	–

Note. SD, standard deviation; SCS, Self-Compassion Scale; RSS, Rosenberg Self-Esteem Scale; DACS, Depression and Anxiety Cognition Scale; STAI, State Trait Anxiety Inventory-Trait form; BDI-II, Beck Depression Inventory-II.

* $p < .01$.

Table 2

Intercorrelations, means, and standard deviations for scores on the SCS, RSS, DACS, PATS, STAI, BDI-II, and SWLS.

	Means	(SD)	1	2	3	4	5	6	7
1. SCS	17.10	(3.66)	–						
2. RSS	31.15	(6.99)	.65*	–					
3. DACS	131.29	(29.76)	–.58*	–.64*	–				
4. PATS	90.53	(17.90)	.62*	.60*	–.54*	–			
5. STAI	48.45	(8.82)	–.72*	–.73*	.64*	–.71*	–		
6. BDI-II	10.54	(7.85)	–.45*	–.57*	.58*	–.53*	.59*	–	
7. SWLS	19.06	(6.06)	.50*	.59*	–.43*	.59*	–.54*	–.37*	–

Note. SD, standard deviation; SCS, Self-Compassion Scale; RSS, Rosenberg Self-Esteem Scale; DACS, Depression and Anxiety Cognition Scale; PATS, Positive Automatic Thought Scale; STAI, State Trait Anxiety Inventory-trait form; BDI-II, Beck Depression Inventory-II; SWLS, Satisfaction With Life Scale.

* $p < .01$.