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Buffering Role of Self-Esteem and Self-Compassion in Negative Affect and Social Comparison of Negative Events

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This study examined the different roles of self-compassion and self-esteem in mitigating the impact of everyday negative events on negative affect and social comparisons via multilevel modeling. A preliminary questionnaire of self-compassion and self-esteem was administered to 101 Korean college students, after which contingent diaries (every four days) were completed by students. Cross-level interaction analysis showed that (1) the more the participant believed the negative event was their own fault, the greater the negative affect and social comparison; and (2) the higher the level of self-compassion, the lower the negative affect and social comparison, which was not observed with self-esteem. The results suggest that self-compassion plays a mitigating role in the impact of negative events, whereas self-esteem does not.

Keywords: self-compassion, self-esteem, social comparison, event contingent diary, negative events

Introduction

Self-esteem, which is defined as "the degree to which one evaluates oneself as valuable overall" (Rosenberg, 1965, p. 5), has been one of the long-standing research topics in psychology and has been identified as essential for maintaining mental health and psychological well-being (Orth & Robins, 2022). Another self-construct, self-compassion, which refers to an attitude of gently taking care of oneself instead of harshly subjecting oneself to self-criticism when in pain (Neff, 2003), was only introduced 20 years ago but has garnered a significant amount of research attention. Meta-analysis studies have shown that self-compassion is positively related to mental health and well-being (Lou et al., 2022; MacBeth & Gumley, 2012; Miyagawa et al., 2023) and potential causal relationship between self-compassion and well-being is proposed (Zessin et al., 2015).

Self-esteem and self-compassion share a number of features and are positively correlated showing a large effect size (Muris & Otgaar, 2023). Despite a conceptual and statistical overlap, self-compassion and self-esteem have been shown to uniquely contribute to mental health and well-being. In particular, they may differ in relation to how individuals respond to negative events or stress, because self-compassion is an attitude toward oneself that is specific to when the person is faced with negative events, such as failure and physical and psychological pain (Allen & Leary, 2010; Neff, 2011).

Although both self-esteem and self-compassion help protect individuals from the shock of negative events, it has been pointed out that some individuals with high self-esteem may be vulnerable to negative events or stress if it their self-esteem is contingent on external validation, such as perceived success or failure in those areas in which one's self-worth is dependent (Crocker et al., 2003; Park &

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Lee, 2015). Compared with self-esteem, self-compassion is an alternative way of relating to oneself (Neff, 2003) that helps people experience positive emotions without having to protect their self-structure against threats or stress events (Neff et al., 2005). In a previous study, self-compassion was related to stable and non-contingent self-worth compared with self-esteem (Park & Lee, 2015), and fewer self-cultivation strategies such as impression management and selective information analysis were used (Petersen, 2014). In a study on self-compassion and dealing with negative life events (Leary et al., 2007), the researchers concluded that self-compassion lessens reactions to negative events differently than self-esteem does and, in some instances, is more helpful than self-esteem.

However, some studies are being conducted from the perspective of self-esteem and self-compassion having a joint protective role in response to negative events. For example, Beekman et al. (2017) examined negative affect as a mediator in the relationship between daily social rejection and restricted eating behaviors among college women. They found self-esteem moderated the relationship between social rejection and negative affect, whereas self-compassion moderated the relationship between negative affect and restricted eating behavior. Thus, they suggested that self-compassion and self-esteem act as discriminatory buffers against eating disorders.

Based on previous research, it can be expected that self-esteem and self-compassion will have both similar and unique influences on how individuals respond to negative events, and that they will interact to perform a joint protective role for negative events. However, the relationship between the two concepts and their response to negative events has been debated (Muris & Otgaar, 2020). The purpose of this study was to examine the buffering roles of self-compassion and self-esteem on the impact of negative events.

In addition, we considered social comparisons as a self-regulatory cognitive variable that is operative in self-esteem but not in self-compassion. In other words, some aspects of self-esteem may be formed based on the recognition and external achievement of others (Leary & MacDonald, 2003), and self-regulation strategies, such as social comparisons, are used (Alicke & Govorun, 2005), whereas self-compassion is unrelated to comparing oneself to others (Neff, 2011). Social comparison is the process of evaluating oneself through comparison with others, an automated psychological process that helps one understand the world and accurately perceive and improve oneself (Stapel & Blanton, 2004). Studies have shown that most people reduce anxiety through social comparisons triggered by motives of self-defense, particularly in the context of self-related threats (Aspinwall & Taylor, 1993). Therefore, when confronting self-threatening negative events, motivations of self-defense could be triggered along with motivations of self-evaluation and improvement, and the process of self-regulation could occur through social comparisons.

The process of self-regulation through social comparison is influenced by the nature of the event or situation, though individual differences exist. Gibbons and Buunk (1999) proposed the concept of the tendency toward social comparison, which has been found to be associated with mental health indicators such as negative emotionality, neuroticism (Hahn & Jang, 2003), anger, and low quality of life (White et al., 2006). Considering that attempts to regulate self-worth through social comparisons play a role in lowering adaptation levels in the long run, even though they may boost self-esteem in the short run (Taylor et al., 1996), chronic and a high tendency of social comparison are likely to harm psychological well-being. In a study on social comparison processes and self-esteem, Vohs and Heatherton (2004) found that people with high self-esteem in threatening situations made downward social comparisons, which is consistent with the better-than-average-effect in using social comparisons to raise self-esteem (Alicke & Govorun, 2005).

Given the above review of the literature, self-compassion is likely to be either negatively related or unrelated to making social comparisons, even when facing negative events. In a prior study (Neff & Vonk, 2009), self-compassion negatively correlated with social comparisons. However, no studies have investigated the effect of self-compassion on making social comparisons when faced with a negative event in real life. To address this gap in the literature, we investigated whether in daily life people with high levels of self-compassion make fewer social comparisons than those with high self-esteem when faced with a negative event.

In this study, negative affect and social comparison associated with real-life events were measured using a longitudinal method to understand the effect of self-compassion and self-esteem on so-

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cial comparison and negative affect. This procedure allowed us to analyze the person-situation interaction (the tendency of individual change by separating time-varying situational variables and levels of individual differential factors), and to reduce retrospective contamination. To this end, self-esteem and self-compassion were measured by pre-examination conducted four times every four days. Belief that a negative event was one's fault, post-event negative affect, and post-event social comparisons were also assessed. Specifically, we tested the hypothesis that negative affect and social comparisons will increase after everyday negative events believed to be due to one's own fault, and that the intensity of this relationship will be moderated by levels of self-esteem and self-compassion.

Methods

Participants

The study was approved by the Institutional Review Board of Seoul National University (IRB No. 147-001_035). The study procedures adhered to the tenets of the Declaration of Helsinki. Informed consent was obtained from all participants before their engagement in the study. A total of 141 undergraduates completed the preliminary survey, but only 112 people wrote all four diaries. Of the 112 participants, the data from 101 (38 men and 63 women) participants were analyzed. Eleven participants were excluded who were determined to not be adequately engaged (overall reaction time was less than five minutes). The average age was 22.42 years ($SD = 2.69$), and participants' ages ranged from 18 to 32 years. The participants received credits in psychology classes or gifts online for their participation.

Measures

Self–Compassion Scale (SCS)

The SCS (Neff, 2003) that was translated into Korean by Kim et al. (2008) was used to assess self-compassion. The SCS consists of 26 items that are responded to on a 5-point Likert scale. The higher the total score, the higher the level of self-compassion. Cronbach's alpha for the original version of the SCS was .92. Cronbach's alpha was .93 in this study.

Rosenberg's Self–Esteem Scale

The Rosenberg Self-Esteem Scale (Rosenberg, 1965) translated by Lee and Won (1995) into Korean was used to assess self-esteem. The scale consists of 10 items that are responded to on a 5-point Likert scale. Higher scores indicate higher self-esteem. Lee and Won reported a Cronbach's alpha of .89 for the scale. Cronbach's alpha was .92 in this study.

Event Contingent Diary (ECD)

Using the ECD technique, after describing the negative event, the type of event, post-event affect, and social comparison were measured. Each question was reconstructed by the researchers according to the ECD technique. Thereafter, two graduate students in their 20s, two clinical psychologists, and two counseling psychologists who had no information on the purpose of the study reviewed the diary and revised the questionnaire after receiving feedback.

First, we referred to a prior study by Leary et al. (2007) for questions on negative events. After the participants described in more than five sentences a negative event experienced in the past four days, they responded to a few questions about the event. Several characteristics of the event, including the event domain, were measured. However, in the analysis for this study, only the item "my wrongdoing or mistake" (MyF) was used, which was responded to using a 7-point Likert scale. Higher scores indicated the more one believed that the negative event was their fault.

Second, after the post-event affect was described in a few sentences, the participants were asked to respond to "duration of affect" (1 = *within minutes,* 2 = *within 10-60 minutes*, 3 = *within hours*, 4 = *all day*, 5 = *for days*) and 18 elements of "affect intensity" (on a 7-point Likert scale). The 18 affects were selected by referring to the Discrete Emotions Scale for Koreans (Kim et al., 2013) and the classification of emotion terms in Korean (Lee et al., 2008). An exploratory factor analysis in this study revealed two factors: post-event negative affect intensity (NA) and post-event positive affect intensity (PA) in all four episodes of the ECD. In this study, only NA was used. Higher scores for NA indicated higher intensity of negative affect.

Third, post-event social comparison was assessed based on the Rochester Social Comparison Record (Wheeler & Miyake, 1992). Social comparison-duration (SCom) is the extent to which the

idea of comparing oneself with others comes to mind. Responses are provided using a 6-point Likert scale, where 1 = *never*, 2 = *one-two times*, 3 = *fewer than 10 times*, 4 = *for more than one hour*, 5 = *for one day*, and 6 = *for several days*. The higher the score for SCom, the more the individual made social comparisons. Subsequently, other dimensions of social comparison were assessed, including social comparison-region, social comparison-subject, and social comparison-direction. However, these data were not analyzed because these variables were not the focus of the study.

Procedure

A total of 141 undergraduates were recruited using online and offline bulletin boards and psychological classes at a university in Seoul. A preliminary survey was conducted with the participants to measure self-compassion, self-esteem, and psychological health through an online survey site linked to the announcement for recruitment. During the pre-survey stage, it was explained to the participants that they would have to write four online diaries of negative events every four to five days and send these via e-mail. Four days after the completion of the preliminary survey, the participants were sent an e-mail to guide them to prepare their first ECD and asked to respond as soon as possible. Similarly, four days after the completion of the first ECD, an online link to write a second diary was mailed in the morning, and the third and fourth diaries were completed in the same manner.

Statistical Analysis

This study was a short-term longitudinal study that repeatedly collected data on individuals' daily experiences. Hence, it consisted of a multilayered structure in which the diary (level 1) at each point was embedded in the individual (level 2). Therefore, hierarchical linear modeling (HLM) was used (Singer et al., 2003). Using Scientific Software International (HLM 8.0; Lincolnwood Inc., USA), it was estimated to be a restricted maximum likelihood method.

To verify the hypothesis, we first verified that MyF (MyF_{ti}) increased the NA (NA_{ti}) and SCom ($SCom_{ti}$) experienced in everyday life at level 1. Next, we added individual self-compassion (SC_i) and self-esteem (SE_i), which can be considered as trait-level variables, at level 2 to confirm the inter-level interactions. The model at each level in the formula was

Level 1 Model

$$NA_{ti} = \pi_{0i} + \pi_{1i} \times (MyF_{ti}) + e_{ti}$$

$$SCom_{ti} = \pi_{0i} + \pi_{1i} \times (MyF_{ti}) + e_{ti}$$

Level 2 Model

$$\pi_{0i} = \beta_{00} + \beta_{01} \times (SC_i) + \beta_{02} \times (SE_i) + r_{0i}$$

$$\pi_{1i} = \beta_{10} + \beta_{11} \times (SC_i) + \beta_{12} \times (SE_i) + r_{1i}$$

where π_{0i} is the initial value of each individual, where it refers to the personal average of NA or SCom when it is a negative event due to MyF, and π_{1i} refers to the rate of change as a change in NA or SCom due to MyF.

Results

There were no significant gender differences in the variables; therefore, gender was not included as a control variable in the analysis. The complete and partial correlations between NA, self-compassion, and self-esteem are shown in Table 1. The partial correlations controlled for self-esteem in the correlations with self-compassion, and for self-compassion in the correlations with self-esteem to control for the effects of these variables in the relationships. NA had strong negative correlations with self-compassion and self-esteem. Before the multilayer model analysis, a null model analysis was performed to ensure that the HLM was reasonable for our application. As a result, individual differences in both NA and SCom after the incident were noted ($p < .001$), confirming

Table 1. *Correlations of SC and SE with MyF, NA, and SCom (n = 101)*

	M (*SD*)	*SC*	*SE*	*SC* (partial)	*SE* (partial)
MyF	3.65 (2.09)	-.21*	-.22*	-.07	-.10
NA	52.60 (18.45)	-.62***	-.52***	-.42***	-.11
SCom	2.34 (1.49)	-.53***	-.42***	-.34**	-.03

MyF = my wrongdoing or mistake; NA = negative affect; SCom = Social comparison-duration.
**p < .05, **p < .01, ***p < .001.*

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that the intraclass correlation coefficient needs to apply to a multilayer model, as NA was approximately 54% (within variance = 157.48 and between variance = 184.21) and SCom was 33% (within variance = 1.49 and between variance = .74) of the variance, with a considerable proportion of the variance accounted for by the variance in level 2 among the total variance.

Effect of MyF on NA

The overall regression coefficient of the slope was significant and, on average, the greater the MyF, the greater the NA. The initial values of NA showed significant variance between individuals, indicating that factors of individual difference were analytical at level 2. In addition, the variance of the slope of the change in NA due to the degree of MyF was significant, indicating the higher the initial value of NA, the greater the rate of change in NA due to MyF (Table 2).

Moderating Effects of Self-Compassion and Self-Esteem in the Relationship Between MyF and NA

Since the random effects at r_0 and r_1 were significant in the unconditional growth model, we analyzed them to account for the initial values and individual differences by adding self-compassion and self-esteem, which were level 2 independent variables that could account for these individual differences. The results indicated self-compassion affected the initial level of NA, while self-esteem did not. In other words, the higher the level of self-compassion, the less negative the affect after the event. However, with regard to self-esteem, this effect did not occur. The intercepts of MyF and the slope of NA were significant, increasing NA relative to the extent of overall MyF, but neither self-compassion nor self-esteem affected the slope of change (Table 3, Figure 1).

Table 2. *Effect of MyF on NA (n = 101)*

Fixed effect	Coefficient	*S.E.*	*t*	*df*	*p*
Intercept 1, π_0					
Intercept 2, β_{00}	52.43	1.39	37.62	100	< .001
MyF slope, π_1					
Intercept 2, β_{10}	2.46	.35	7.02	100	< .001
Random effect	*SD*	Variance	*df*	χ^2	*p*
Intercept 1, r_0	12.83	164.66	100	481.33	< .001
MyF Slope, r_1	1.70	2.89	100	130.51	.02
Level 1, e	11.12	123.71			

MyF = my wrongdoing or mistake; NA = negative affect.

Table 3. *Cross-level Moderating Effects of SC and SE on NA (n = 101)*

Fixed effect	Coefficient	*S.E.*	*t*	*df*	*p*
Intercept 1, π_0					
Intercept 2, β_{00}	97.89	6.00	16.32	98	< .001
SC, β_{01}	-.52	.11	-4.92	98	< .001
SE, β_{02}	-.14	.20	-.68	98	.50
MyF slope, π_1					
Intercept 2, β_{10}	7.51	1.81	4.16	98	< .001
SC, β_{11}	-.03	.03	-.89	98	.38
SE, β_{12}	-.08	.06	-1.31	98	.19
Random effect	*SD*	Var	*df*	χ^2	*p*
Intercept 1, r_0	9.49	90.15	98	320.40	< .001
MyF slope, r_1	1.41	1.99	98	120.59	.06
Level 1, e	11.12	123.64			

MyF = my wrongdoing or mistake; NA = negative affect.

Table 4. *Effect of MyF on SCom (n = 101)*

Fixed effect	Coefficient	*S.E.*	*t*	*df*	*p*
Intercept 1, π_0					
Intercept 2, β_{00}	2.34	.10	22.40	100	< .001
MyF slope, π_1					
Intercept 2, β_{10}	.12	.03	3.84	100	< .001
Random effect	*SD*	Variance	*df*	χ^2	*p*
Intercept 1, r_0	.87	.76	100	317.04	< .001
MyF Slope, r_1	.09	.01	100	103.59	.383
Level 1, e	1.18	1.40			

MyF = my wrongdoing or mistake; SCom = Social comparison-duration.

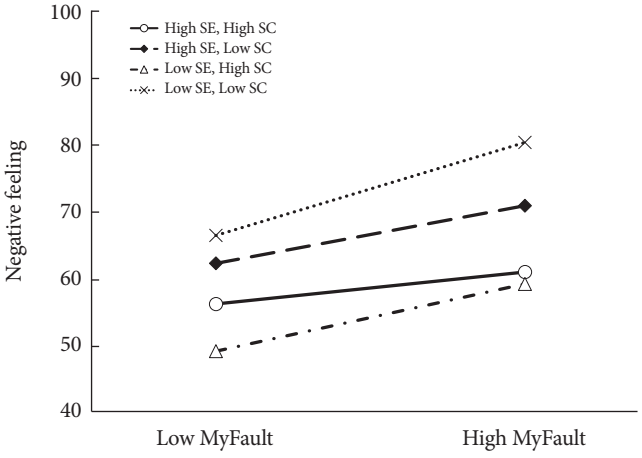

Figure 1. *Self-esteem (SE) and self-compassion moderates effects of on negative affect.*

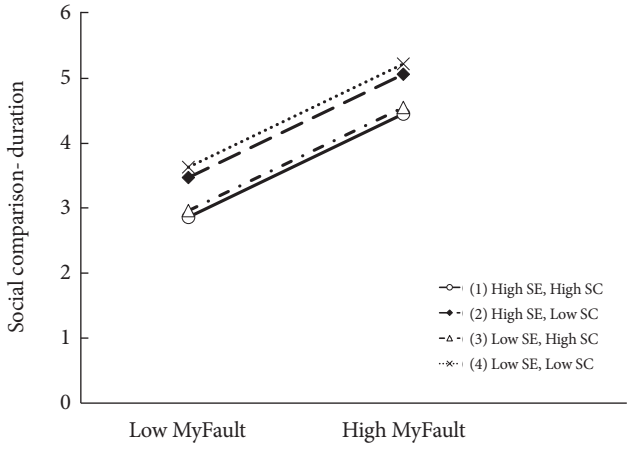

Figure 2. *Self-esteem (SE) and self-compassion moderates effects of on social comparison_duration.*

Table 5. *Cross-level Moderating Effects of SC and SE on SCom (n = 101)*

Fixed effect	Coefficient	*S.E.*	*t*	*df*	*p*
Intercept 1, π_0					
Intercept 2, β_{00}	4.58	.52	8.79	98	< .001
SC, β_{01}	-.02	.01	-2.45	98	< .05
SE, β_{02}	-.01	.02	-.75	98	.46
MyF slope, π_1					
Intercept 2, β_{10}	.38	.17	2.26	98	< .05
SC, β_{11}	-.00	.00	-.52	98	.60
SE, β_{12}	-.00	.01	-.75	98	.46
Random effect	*SD*	Var	*df*	χ^2	*p*
Intercept 1, r_0	.77	.59	98	204.03	< .001
MyF slope, r_1	.06	.00	98	99.72	.09
Level 1, e	1.19	1.41			

MyF = my wrongdoing or mistake; SCom = Social comparison-duration.

Effect of MyF on SCom

The overall regression coefficient of the slope was significant and, on average, the higher the MyF, the greater the SCom. The initial values of SCom showed significant variance between individuals, indicating that factors of individual difference were analytical at level 2. However, the variance in the change in SCom due to MyF

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was not significant (Table 4).

Moderating Effects of Self–Compassion and Self–Esteem in the Relationship Between MyF and SCom

As shown in Table 5, self-compassion had a significant negative effect on the initial values, whereas self-esteem had no effect. Neither self-compassion nor self-esteem affected the relationship between the MyF and SCom slopes; that is, this pattern did not change depending on the level of self-compassion or self-esteem, although the higher the MyF, the higher the SCom (Figure 2).

Discussion

In this study, we attempted to longitudinally verify the role of self-compassion and self-esteem as buffers against negative events due to "my wrongdoing or mistake." Specifically, we intended to verify whether self-compassion acted as an emotional buffer against negative events and activated fewer social comparisons (SCom) than self-esteem. The main results were as follows.

First, negative events due to "my wrongdoing or mistake" in real life significantly predicted an increase in intensity of negative affect (NA). Considering self-compassion and self-esteem as the individual difference factors in this relationship, the higher the self-compassion, the lower the NA, and this effect was not observed for self-esteem. In other words, people with high levels of self-compassion tended to remain calm during negative events.

Second, negative events due to "my wrongdoing or mistake" in real life significantly predicted an increase in SCom. Considering self-compassion and self-esteem as the individual difference factors in this relationship, the higher the self-compassion, the lower the SCom, and this effect was not observed for self-esteem.

It is worth considering that the emotional and cognitive buffering effects that mitigate the effects of negative events are generally stronger in people with high levels of self-compassion than those with high self-esteem. Furthermore, when self-compassion and self-esteem were considered as individual difference factors, the effect of self-esteem as a buffer against NA and SCom disappeared and only self-compassion was significant. As previously mentioned, the buffering role of self-esteem and self-compassion in response to negative events has been debated, which includes the opinions that one is more effective than the other, both have a unique role, and they interact to act as a buffer. The results of the current study support the opinion that self-compassion is more explanatory for buffering the effect of negative events than self-esteem, or that self-compassion has incremental value over self-esteem (Krieger et al., 2015; Leary et al., 2007).

Possible explanations for this finding are as follows. First, self-compassion is not related to a distortion of self-knowledge, including a self-serving bias (Leary et al., 2007). Self-compassion is related to the attitude of observing an experience as it is with a kind heart even when it is a threatening experience; thus, there is little need for self-defense. This allows individuals with a high level of self-compassion to have the psychological leeway to accept their shortcomings and the negative consequences of an event (Neff, 2003; Neff & Vonk, 2009). In addition, people with self-compassion can create "warmth" (Gilbert & Proctor, 2006) when experiencing pain and can neutralize the impact of negative events due to positive affect (Neff, 2011).

Second, self-compassion relates to the characteristics of non-contingent healthy self-worth (Neff, 2003; Park & Lee, 2015). Contingent self-esteem shares little commonality with self-compassion, whereas intrinsic self-esteem and self-compassion are more closely related (Fraser et al., 2023; Yao, 2023). Thus, people with high self-compassion would be less affected by negative events that are attributed to failure or one's fault and experience less negative affect and need for self-regulation through social comparison when experiencing negative events.

Third, people who make frequent social comparisons tend to set others as competitive comparisons (White et al., 2006), whereas self-compassion includes the concept of compassion for vulnerability rather than competitive others.

Fourth, in neurophysiological studies, self-esteem is related to the activation of the evaluation process that evokes a conceptual representation of oneself, whereas self-compassion is related to the process of mindfulness that observes experience nonjudgmentally. Gilbert et al. (2006) assumed that self-esteem and self-compassion would each involve a process with a unique biological basis. Self-compassion is involved in deactivating the threat system and activating the soothing system, whereas self-esteem activates the threat system in relation to error detection during self-evaluation

and the seeking system related to social comparison and superiority evaluation. Increasing self-compassion activates brain circuits associated with the soothing system for threats, reducing brain circuits' response to the threat system (Lutz et al., 2009).

However, these findings are not evidence to undermine the buffering role of self-esteem. Self-esteem and self-compassion share common variance and the relationship between the two and the buffering effect is likely to be more complex and subtle; thus, there is the possibility that this study did not fully capture this phenomenon, such as the interaction of self-esteem with self-compassion or possibility of engaging in different buffering processes. For example, Beekman et al. (2017) reported that self-esteem played a role in influencing restricted eating behavior through negative emotions and that self-compassion played a role between negative affect and restricted eating behaviors. In other words, people with high self-esteem are likely to protect themselves from the effects of negative events in a way that rejects these events, while those with high self-compassion are likely to be affected by negative events and not link them to psychological health. Furthermore, the interventive network model (Fraser et al., 2023) suggests that the relationship between self-esteem and self-compassion is bidirectional and that they may dynamically bolster each other over time. Therefore, in order to accurately understand the buffering role of self-esteem and self-compassion, it is necessary to examine the interactive action between the two in a longitudinal study.

There are several implications of this study. First, this study enhanced the clinical usefulness of self-compassion through a comparison with self-esteem. It has been suggested that self-compassion should be compared with self-esteem (Neff, 2003), but this has not been sufficiently examined to verify the relationship between the two concepts. Through comparisons between the two concepts, we provide data on the benefits and limitations of self-esteem for psychological health and recommendations for what a truly positive self-related attitude is, beyond the basic dichotomy of self-esteem.

Second, the findings suggest that interventions that increase self-compassion will be more clinically useful than those that increase self-esteem for people who are experiencing negative emotions in response to negative events, such as failure and loss. Patients who are receiving treatment in clinical settings often are not able to practice self-love, even if they are aware of its significance. However, it is important to accept the serenity or vulnerability experienced at every moment in a dynamic environment, beyond the conceptual level of how good one is. A deep level of self-love can mean not maintaining a high sense of self-esteem every moment, but accepting a decline in self-esteem and even a greater reduction (Ellis, 2005).

Third, social comparison was proposed as an underlying variable in the process of mitigating the impact of negative events, and it was empirically verified that people with high self-compassion made less social comparisons. It was suggested that self-compassion would regulate emotion and the self in the face of negative events, but specific verification of the variables involved in the process was insufficient. In this study, the self-regulation process for negative events was embodied by presenting and verifying a variable called social comparison.

Fourth, in this study, it was assumed that among individuals who make frequent social comparisons, those with high self-compassion would be more likely to recover relatively quickly from the negative effects of social comparison. Our results provided support for this contention. This finding has implications for the usefulness of introducing interventions aimed at fostering self-compassion among people who make frequent social comparisons. This finding may be particularly meaningful in the context of Eastern culture where the self-concept is influenced by social context and the social self is dominant (Suh, 2007). As such, self-regulation strategies such as social comparison may be pronounced (Jang, 2009; White & Lehman, 2005).

Fifth, this study had methodological strengths with regard to ecological validity and the use of a multi-layer model. This allowed us to analyze the tendency of individual change by separating time-varying situational variables and levels of individual difference factors assumed to be relatively characteristic. Self-compassion can be the sum of emotions and attitudes experienced in daily life rather than a conceptual evaluation of oneself; therefore, it is necessary to examine actual emotional conditions or reactions in daily life rather than relying on overall reporting. In this study, external validity was obtained by verifying the relationship between self-compassion and response to negative events in daily life.

Some limitations of this study can be addressed in future re-

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search. First, the cases experienced by the participants are not the same because they were required to report in real life. Furthermore, it is possible that negative events reported in ECD belong not only to the event itself but also a personal interpretation of what happened. Therefore, it is necessary to cross-validate through scenario studies or experimental studies to control individual differences in event perception. Second, social comparisons may differ in qualitative characteristics such as motivation, direction of comparison, and kind of negative events. As such, future research should consider providing the results subdivided by each type of negative event. Third, people with high self-compassion may resort to fewer instances of social comparison because they maintain equilibrium, or it may be easier for them to maintain equilibrium because social comparison is not triggered within them. Therefore, future research is needed to verify the causal relationship between social comparative tendencies and emotional responses in people with high self-compassion. Fourth, whether social comparison affected the mental health and well-being of participants beyond negative affect was not investigated. In future studies, the causal relationship between social comparative tendencies and mental health factors such as depression should be investigated. Fifth, the results of this study are limited in generalizability because the sample comprised only non-clinical college students and individuals during the stage of early adulthood. Therefore, future research is needed with diverse populations, including non-college community and clinical populations.

Despite these limitations, the current study is meaningful in that it used ecological methods to capture scenes in real life where self-compassion and self-esteem mitigated the impact of negative events. Self-compassion plays a significant role in mitigating the impact of negative events, such as threats, failures, and pain, and helps initiate an adaptive self-regulation process. High self-esteem can be a protective and motivational factor for self-healing and achieving one's goals; however, when faced with pain and failure, self-compassion can be effective in reducing or minimizing the harmful effects of negative events.

Author contributions statement

Se-Ran Park, graduate student at Seoul National University, collected and analyzed data, and led manuscript preparation. Hoon-Jin Lee,professor at Seoul National University,revised the design and writing of the paper. All authors provided critical feedback, participated in revision of the manuscript, and approved the final submission.

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