Associations of self-compassion and global self-esteem with positive and negative affect and stress reactivity in daily life: Findings from a smart phone study

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ARTICLE INFO

ABSTRACT

The present study examined trait self-compassion and trait self-esteem in relation to positive (PA) and negative affect (NA), as well as their associations with stress reactivity in daily life. One hundred and one subjects completed questionnaires on perceived stress and affect twice a day for 14 consecutive days on smart phones. Results indicated that self-compassion and global self-esteem were positively related to PA and negatively to NA. After controlling for self-esteem, self-compassion remained significantly associated with PA and NA, whereas self-esteem was no longer associated with PA and NA after controlling for self-compassion. Furthermore, results indicated that self-compassion buffered the effect of stress on NA, whereas this was not the case for global self-esteem. Neither self-compassion nor self-esteem moderated the relation of stress on PA in separate models. The results of the present study add to the growing literature regarding beneficial relations of self-compassion and psychological well-being and further emphasize the distinction of self-compassion and global self-esteem.

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Global self-esteem (GSE) (Rosenberg, 1965) refers to a general positive or negative orientation toward the self. High GSE has been defined as a person's appraisal of his or her value involving positive self-regard and the belief that one is valued by others. High levels of GSE are associated with enhanced initiative and pleasant feelings. However, high levels of GSE are not consistently related to adaptive behaviors (Baumeister, Campbell, Krueger, & Vohs, 2003).

Inspired by Buddhist tradition, Neff (2003) has introduced the concept of self-compassion (SC) as an alternative way of looking at positive self-regard. SC involves "being open to and moved by one's own suffering, experiencing feelings of caring and kindness toward oneself, taking an understanding, nonjudgmental attitude toward one's inadequacies and failures, and recognizing that one's experience is part of the common human experience" (p. 224; Neff, 2003). During the last decade, a large body of research has shown that high levels of SC are positively associated with psychological health and well-being (Barnard & Curry, 2011) and there has been considerable interest in the mental health benefits of self-compassion.

Although there are some similarities between SC and GSE, an overview by Neff (2011) concludes that self-compassion represents a more straightforward way to conceptualize a healthy way of relating to oneself than the more general construct of self-esteem, since "[…] it provides a stable foundation of positive self-regard" [p. 9]. This assumption finds support in a study by Neff and Vonk (2009), that demonstrates that SC is associated with more non-contingent and stable feelings of self-worth than are trait levels of GSE.

GSE and SC relate to central constructs in health and well-being research, such as positive and negative affect (PA and NA). Research on GSE has consistently found that high levels of GSE are associated with high levels of PA and low levels of NA as well as depressive symptoms (e.g., Neff & Vonk, 2009; Nezlek & Plesko, 2001). Similarly, several studies have shown that SC is positively related to PA and negatively to NA and depressive symptoms (Leary, Tate, Adams, Allen, & Hancock, 2007; Neff & Vonk, 2009).

Since SC seems to be particularly important when confronted with challenging situations, it has been argued that SC plays a role in self-regulation in service of coping with stress (Allen & Leary, 2010): A more self-compassionate individual is assumed to respond to adverse feelings by attending to them with an open and kind attitude, as well as by acknowledging that experiences of imperfection and difficulties are part of human life. Such attitude or coping promotes proactive and non-avoiding ways of dealing with adversities and stress such as automatic positive thinking, likely reducing NA and/or maintaining PA

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(Arimitsu & Hofmann, 2015; Diedrich, Grant, Hofmann, Hiller, & Berking, 2014).

So far, several studies found that a self-compassionate attitude buffers the effect of stressful situations on negative affect or depressive symptoms. For example, it may buffer the effect of homesickness (Terry, Leary, & Metha, 2013 Self and Identity) and divorce (Sbarra, Smith, & Mehl, 2012) or when being confronted with real, remembered, and imagined negative events (Leary et al., 2007). However, to our knowledge there is no study that has investigated the effect of levels of self-compassion on the relation of perceived stress on momentary affect. Regarding GSE, studies investigating potential stress buffering effects on NA or depressive symptoms yielded mixed results. In one of the most comprehensive studies so far, Orth, Robins, and Meier (2009) showed that low levels of GSE as well as high levels of stress independently lead to negative affect or depressive symptoms and that a stress-buffering model did not adequately represent the data. Although measures of SC and GSE are typically moderately positively correlated, studies investigating the unique effects of the two constructs (e.g., by controlling for each other in a joint regression analysis) found differential associations with psychological outcomes (for an overview see Barnard & Curry, 2011). Regarding buffering effects, Neff and colleagues (Neff, Kirkpatrick, & Rude, 2007) showed that SC, but not GSE, helps to buffer against anxiety in self-evaluative situations (after controlling for the effect of the other variable).

Based on research and theoretical considerations mentioned above, we tested the following hypotheses: (1) Both SC and GSE will be negatively associated with NA and positively with PA, and (2) SC, but not GSE will buffer the relation of perceived stress on NA and PA. We applied an ecological momentary assessment (EMA) design using smart phones, that allowed for assessing participants in their natural environment.

1. Methods

1.1. Participants

A sample of 105 non-clinical participants was recruited from the Swiss German-speaking general population via flyers, posters, a mailing list of the psychology department, and by word of mouth among the social environment of the authors. Of the initial sample, data of four participants were excluded due to technical assessment problems. The final sample consisted of 101 participants (21 male, 80 female). Mean age of the sample was 28.5 years ($SD = 12.2$; range = 18–61 years). Sixty-eight (67%) participants were students. Education level was rather high, with 56% having at least a college degree ("Matura" or "Abitur"), and 31% having at least a university degree. All participants were Caucasian.

1.2. Procedure

The study was advertised as a diary study investigating the relationships between personality, stress, and well-being. After first contact via an email expressing interest, a research assistant invited participants in groups of up to eight to the lab. During an introductory session, participants were instructed in handling a smart phone, provided demographic information and completed a questionnaire package including measures of SC and GSE. The study used a time-based protocol with fixed interval schedules and participants were prompted acoustically twice a day (midday: 11 a.m. and evening 7 p.m.) to answer the questions. These assessments were collected for the following 14 days in people's everyday life. If participants did not answer the prompt within 3 h, the response window was closed in order to prevent backfilling of data (and the data point was treated as missing). Participants were equipped with HTC Diamond Touch 2 smart phones, on which questionnaires were implemented using *mQuest* data entry software (*cluetec* GmbH, Karlsruhe, Germany). Upon completion of the study period, all participants took part in a raffle for one of eight gifts, worth

approximately US $50 each. All subjects provided written informed consent before participating.

1.3. Measures

1.3.1. Trait measures

1.3.1.1. Self-compassion. SC was assessed with the German Version of the Self-Compassion Scale (Hupfeld & Ruffieux, 2011). The SCS is a 26-item self-report inventory that consists of six subscales: self-kindness, self-judgment, common humanity, isolation, mindfulness, and over-identification. Participants answered each item on a 5-point Likert-scale from 1 (*I strongly disagree*) to 5 (*I strongly agree*). The German SCS has also shown high internal consistency good construct validity, and a higher-order confirmatory factor analyses demonstrated that the single factor of SC adequately explains the inter-correlations of the six subscales (Hupfeld & Ruffieux, 2011). In this study. Cronbach's alpha for the total mean score was .85.

1.3.1.2. Global self-esteem. Global self-esteem was assessed using the German version of the 10-item Rosenberg Self-Esteem Scale (von Collani & Herzberg, 2003). The RSES is the most commonly used and a well-validated measure of GSE. Several studies in different samples gave support to its reliability and stability. Responses were given on a 4-point Likert-scale ranging from 0 (*strongly disagree*) to 3 (*strongly agree*). In the present study, Cronbach's alpha for the total mean score was .87.

1.3.2. EMA measures

Repeated measures were given to all participants via smart phone twice a day for 14 consecutive days. Between- and within-person reliability (i.e., Cronbach's alpha) were computed for all these measures according to the recommendations of Geldof and colleagues (Geldhof, Preacher, & Zyphur, 2014)[1].

1.3.2.1. Positive and negative affect. PA and NA were assessed with 10 mood adjectives. In the present study, each item was preceded by the instruction "How did you feel since the last assessment?" and participants rated each item on a Likert scale from 1 (*not at all or a little*) to 5 (*very much*). Consistent with previous studies (Jacobs et al., 2011) a PA scale and a NA scale was built using the mean score of the respective items per entry. NA was measured with the items: *worried, angry, frightened, nervous,* and *anxious*. PA was measured with the items *elated, excited, motivated, awake,* and *determined*. For PA, between-person reliability was .84 and within-person reliability was .72. For NA, between-person reliability was .89 and within-person reliability was .67.

1.3.2.2. Perceived stress. Perceived stress was assessed in eight different domains: romantic partnership, family, friends, work/school/university, spare time/hobbies/sports, errands, financial affairs, and physical health/well-being. Participants rated one item per domain on a Likert-scale with the endpoints of 0 (*not at all*) and 10 (*very much*) to what extent they had experienced stress in each of these domains since the last assessment. The mean level in the eight domains was used as a person's total score of perceived stress since the last assessment (Sowislo, Orth, & Meier, 2014). The mean score of this measure has shown convergent validity ($r = .59$, $p < .001$) with the widely used Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983) in a sample of 274 non-clinical individuals in an unpublished cross-sectional dataset of our research group. For this measure, between-person reliability was .85 and within-person reliability was .45. Although the latter value might

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[1] We obtained separate within- and between-person alpha coefficients by specifying fully saturated indicator covariance matrices in both levels of a multilevel confirmatory factor analysis.