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Self-Compassion and Trauma Processing Outcomes Among Victims of Violence

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Abstract Self-compassion entails being kind and understanding toward oneself in instances of psychological pain and holding painful thoughts and feelings in mindful awareness. Self-compassion has been associated with positive mental health outcomes and may have implications for post-traumatic processing. Sixty-three female trauma survivors completed measures of post-traumatic stress and self-compassion (baseline). One week later, they were randomly assigned to one of three processing conditions to undergo an induction: "analytic" (brooding, conceptualizing), "experiential" (self-reflective, mindful experiencing), or control. Following induction, participants completed a trauma-specific interview to discuss their trauma. Before induction (T1) and after the interview (T2), women completed measures of anxiety and affectivity. At baseline, greater self-compassion correlated with less post-traumatic stress symptoms. After the induction and trauma interview at T2, greater self-kindness and mindfulness correlated with less anxiety and negative affectivity in controls. In the analytic processing condition, greater self-kindness correlated with less negative affectivity, whereas mindfulness correlated with less anxiety and negative affectivity and greater positive affectivity at T2. In the experiential processing condition, greater self-kindness correlated with more anxiety and positive affectivity at T2 and greater common humanity correlated with more anxiety at T2. Results indicated that processing modes exert differential effects of self-compassion on trauma-related anxiety and affectivity. During conditions of experiential processing, self-kindness may allow for greater tolerance of anxiety. During conditions of analytic processing, mindfulness may decrease anxiety and negative affectivity by reducing the tendency to perseverate on negative internal experiences. Implications for research, theory, and practice are discussed.

Keywords Self-compassion · Mindfulness · Post-traumatic stress · Trauma processing

Introduction

Self-compassion is conceptualized by Neff (2003) in terms of three primary features—self-kindness, mindfulness, and common humanity. The central aspect of self-compassion is self-kindness, which involves extending oneself kindness, sensitivity, warmth, empathy, and patience during instances of pain and failure, as opposed to being harshly self-critical and judgmental toward oneself. Self-kindness promotes feelings of unconditional worth and affirms that one deserves love, happiness, and affection. Another core component of self-compassion is mindfulness, which is defined as "paying attention in a particular way: on purpose, in the present moment, and nonjudgmentally" (Kabat-Zinn 1994, p. 4). Thus, thoughts and feelings are not suppressed, analyzed, or judged for content. Instead, mindfulness cultivates an orientation of radical acceptance (i.e., willingness to accept what is in one's control and what is not) and a nongoal orientation stance (i.e., being unattached to a specific outcome or achievement). Mindfulness is essential to self-compassion as individuals must acknowledge their internal experiences, as opposed to becoming over-identified with their internal experiences, in order to feel compassion for them. Lastly, common humanity involves the recognition that one's experiences, regardless of

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how painful they might be, are part of the common human experience rather than separating and isolating. Realizing that one is not alone in the experience of human suffering promotes feelings of connectedness with others and forgiveness to oneself for being limited and imperfect.

A meta-analysis found that self-compassion is associated with positive mental health outcomes, such as less depression and anxiety and greater life satisfaction (MacBeth and Gumley 2012). Furthermore, recent theory and research has identified that self-compassion is relevant to post-traumatic stress and may have implications for post-traumatic processing (e.g., Thompson and Waltz 2008). That is, following trauma exposure, individuals may develop fear in response to trauma-related cues and erroneous beliefs about the causes and consequences of the traumatic event(s), which are very often accompanied by a range of other strong negative emotions, such as anger, guilt, shame, disgust, and sadness (Andrews et al. 2000; DePrince et al. 2010; Foa et al. 1995; Grey et al. 2001; Reynolds and Brewin 1998). These painful internal experiences may elicit a judgmental self-blaming response and avoidant-coping strategies that take the form of self-critical ruminative thinking. In fact, research has found that low self-compassion is positively associated with avoidant-coping strategies (Neff et al. 2005). Thus, post-traumatic stress may engender painful internal experiences that are difficult to tolerate for individuals who are inherently lower in self-compassion, which may maintain distress by promoting the use of ineffective avoidant-coping strategies.

Indeed, several studies have found that self-compassion is positively associated with positive affect (PA) and negatively associated with negative affect (NA), in general, and in the face of real, imagined, and remembered events (Barnard and Curry 2011). In terms of coping, self-compassion has been found to be negatively correlated with rumination, brooding, thought suppression, and avoidance-oriented coping strategies such as denial and mental disengagement, which partly explains the association between self-compassion and affect (Barnard and Curry 2011). That is, the relation between greater self-compassion and other negative emotional states, such as less depression and anxiety, is partially mediated by lesser fear of failure, greater perceived competence, as well as less rumination, brooding, and worry (Barnard and Curry 2011). In response to unpleasant self-relevant events, greater self-compassion is associated with less thought suppression (Leary et al. 2007). With respect to post-traumatic stress, research has demonstrated that lower self-compassion in a sample of trauma survivors was associated with greater avoidant symptom severity, a maintaining factor in post-traumatic stress (Thompson and Waltz 2008).

Traditional cognitive-behavioral therapy (CBT) approaches for post-traumatic stress attempt to break the cycle of avoidance and perseveration on maladaptive beliefs that promote negative feelings. This is accomplished by intervening on an analytic level through cognitive restructuring strategies that provide corrective information. Such treatments have been empirically supported for the treatment of post-traumatic stress disorder (PTSD; Cahill et al. 2009). Yet, dropout rates for these therapies average 22.1 % for cognitive therapy and 26.0 % over 12 trials of exposure therapy combined with cognitive therapy (Hembree et al. 2003). Critics have suggested that: (1) some clients may find it difficult to tolerate trauma exposures, which may diminish treatment compliance and outcomes (Tarrier and Humphreys 2000); (2) overwhelming anxiety in the client may render exposure treatment ineffective (Jaycox et al. 1998); and (3) difficulty with distress tolerance and a tendency to dissociate under stress may predict less-favorable outcomes (Chemtob et al. 1997). Also, emotional numbing symptoms of PTSD may be less responsive to traditional CBT approaches than other symptom clusters (Johnson et al. 2012; Taylor et al. 2001). Further, there is evidence to suggest that individuals entrenched in self-criticism and shame, often evident in those suffering from post-traumatic stress, do poorly in CBT. They may be likely to express statements such as "I understand the logic of my alternative thinking but it doesn't really help me *feel* much better" (Gilbert 2009, p. 199).

Researchers and clinicians are beginning to find promising clinical results with experientially focused treatments that encompass self-compassion in the context of treating trauma and post-traumatic stress. For instance, compassionate mind training, a treatment designed to teach self-compassion, significantly reduced depression, self-criticism, anxiety, shame, inferiority, and submissive behavior and increased self-soothing and focus on feelings of warmth and reassurance for the self, in a small open trial of six clients with significant trauma histories (Gilbert and Proctor 2006). In a sample of veterans with PTSD, loving-kindness meditation, a treatment approach that facilitates increased positive emotions through meditation exercises designed to develop feelings of compassion for self and others (Fredrickson et al. 2008), significantly increased self-acceptance from baseline to three months post-treatment (Kearney et al. 2014). Another study found that loving-kindness meditation in a sample of veterans with PTSD significantly decreased post-traumatic stress and depressive symptom severity, and this reduction was mediated by increased self-compassion (Kearney et al. 2013). Furthermore, increased self-compassion may be one mechanism by which other mindfulness-based approaches ameliorate post-traumatic stress, as studies have demonstrated that you can raise self-compassion through mindfulness-based training (Barnard and Curry 2011). For example, mindfulness-based stress reduction (MBSR) resulted in significantly reduced depression and post-traumatic stress symptoms, particularly avoidant symptoms, in a sample of community child sexual abuse survivors (Kimbrough et al. 2010) and veterans seeking treatment at a VA hospital (Kearney et al. 2012).

According to cognitive-experiential self-theory (Epstein 2003), a theory characterizing two distinct systems (i.e., analytic-rational versus experiential-intuitive) that individuals utilize to process information, both analytic and experiential processing systems have advantages and disadvantages. This may explain why both analytically (e.g., traditional CBT) and experientially (e.g., third-wave CBT) focused treatments are effective for post-traumatic stress. Analytic processing directs behavior through logical principles, though requires a large amount of cognitive resources. For example, one could use analytic approaches to restructure trauma-related cognitions. Experiential processing directs behavior through emotional intuition, and thus it is quick and efficient, though poor at dealing with abstract concepts. For example, continued exposure to feared stimuli can reduce a sense of anxiety. The two systems work best in tandem and allow one to consider all sources of data, including the details and bigger picture of an event. Thus, the most adaptive solution employs both independent systems to communicate with and influence each other (Epstein 2003). For example, the experiential system can influence the analytic system by producing feelings that guide thought and action, whereas the analytic system can influence the experiential system by directing one to have certain real or imagined adaptive experiences. One recent study examined the effectiveness of mindfulness-based cognitive therapy (MBCT; Segal et al. 2002), a treatment that utilizes both analytic and experiential processing systems, to treat post-traumatic stress. MBCT adapted for PTSD was compared with brief treatment as usual (i.e., PTSD Psychoeducation and Skills Group and Imagery Rehearsal Therapy Group) in a nonrandomized design and was found to significantly reduce post-traumatic stress symptoms, particularly avoidant/numbing symptoms, and reduce trauma-relevant cognitions in a sample of veterans seeking outpatient treatment (King et al. 2013). Thus, cultivating analytic and experiential skills may be beneficial in the treatment of post-traumatic stress, though more research is needed to clarify the role of self-compassion under such processing conditions. Understanding how self-compassion may help or hinder such treatment conditions may have implications for what treatments of post-traumatic stress work best for whom.

This study examines the impact of self-compassion components and analog treatment components (i.e., analytic versus experiential processing) on trauma processing outcomes of negative affect (NA), positive affect (PA), and anxiety among a sample of interpersonal trauma survivors in an experimental design. Given prior research that has demonstrated greater self-compassion being associated with less post-traumatic stress symptomatology, less anxiety, less NA, and more PA, it was hypothesized that (1) greater self-kindness and mindfulness will be associated with less post-traumatic stress symptoms, (2) after trauma processing, greater self-kindness and mindfulness will be associated with less negative trauma processing outcomes (i.e., less NA and anxiety, greater PA), (3) mindfulness will be associated with less negative emotional trauma processing outcomes after analytic processing potentially by providing experiential awareness to reduce emotional distress, and (4) self-kindness will be associated with less negative emotional trauma processing outcomes after experiential processing potentially by extending oneself forgiveness and sensitivity when having self-critical thoughts. The relation between common humanity and both post-traumatic stress symptoms and trauma processing outcomes will be explored to better shed light on this component of self-compassion and post-traumatic sequelae, as common humanity is a unique concept without an obvious parallel to post-traumatic stress symptoms (Thompson and Waltz 2008). It may be that trauma survivors who acknowledge that suffering is part of the shared human experience cope better with trauma experiences, though it is unclear whether this concept would be relevant to specific post-traumatic stress symptoms and trauma processing outcomes.

Method

Participants

Of 63 participants who were victims of intentionally caused trauma, 56 were community women and 7 were female university students (three students in the experiential processing condition, three students in the analytic processing condition, and one student in the control group). Intentionally caused trauma was defined as a trauma in which a human being inflicts physical or psychological injury on another human being (i.e., sexual and/or physical assault). The average age of participants was 31.48 (SD=12.76), ranging from 18 to 67. Thirteen participants were Hispanic or Latino (20.6 %). Approximately half were Caucasian/White (50.8 %, n=32); 30.2 % were African American/Black (n=19), 1.6 % were American Indian or Alaskan Native (n=1), 1.6 % were Asian (n=1), 6.3 % were Biracial (n=4), 1.6 % reported unknown (n=1), and 6.3 % declined to answer (n=4). Most participants in the subsample were heterosexual (85.7 %, n=54) and 39.7 % were single (i.e., never married, n=24). The majority of participants had some college or vocational school training (54 %, n=34), and the greatest proportion of participants reported a household income of $15,000 or less (33.3 %, n=21). Across experimental groups (analytic processing, experiential processing, control), participants did not differ with regard to age, ethnicity, race, sexual orientation, marital status, education level, or household income (all p values >.05).

Participants were recruited from the Psychology Department student subject pool at a large Midwestern university and from the community through advertisements in local commercial locations (grocery stores, laundromats),

social service agencies, and college billboards, as well as through previous research databases in which participants consented to be re-contacted for future studies. Community and student participants were prescreened through telephone and undergraduate classroom mass testing, respectively, to determine their eligibility for the study. Only women over the age of 18 were included to avoid introducing gender influences on post-traumatic stress into the study (e.g., Tolin and Foa 2006). Additionally, previous research has shown intentionally caused traumas to be among the most distressing events reported by college students (Frazier et al. 2009) and community trauma victims (Breslau et al. 2004) and to result in the highest probability of PTSD (Breslau et al. 1998). Women were excluded from participation if (a) the last incident of the identified trauma occurred before the age of 16, to reduce the potential of developmental trauma effects in the study; and (b) the trauma occurred within the last three months, as this group of individuals could have been coping with a high degree of post-traumatic stress symptoms (Rothbaum et al. 1992), and participation in this study could have placed participants under additional distress or interfered with study results.

Procedure

Women who met inclusion criteria at the prescreening were asked to complete a set of self-report questionnaires online to obtain demographic and trauma history information, as well their level of self-compassion and post-traumatic stress severity one week prior to a research session in the lab (baseline; refer to the Appendix for an outline of the study procedure). Participants consented online by clicking the appropriate button that directed them to the online study questionnaires. Participants who did not have access to a computer or the internet completed the online questionnaire in the research lab, where they were given access to a computer. The online questionnaire took approximately 30 min to complete. Community participants were paid $10 for their time, and student participants were given course credit. Following the completion of the online questionnaires, participants were assigned randomly to either an experimental condition (experiential processing or analytic processing) or the control group. They were then contacted via phone or e-mail to schedule a lab session. Childcare was provided by undergraduate research assistants during the lab session when needed.

The mean number of days between the online questionnaire and research session was 15.14 (SD=10.59) and ranged from 7 to 61 days, which did not differ by condition, $F(2, 62)=0.66$, $p=.522$. The lab session took approximately 1.5 h to complete. Community participants received an additional $30 for their time, and student participants received additional course credit. The lab session began by having participants complete the Beck Anxiety Inventory (BAI; Beck et al. 1993), and then the Positive and Negative Affect Schedule-Expanded Form (PANAS-X; Watson and Clark 1999) to obtain a baseline of state anxiety and state affect, respectively (T1). After the first author administered the BAI and PANAS-X questionnaires to participants, a female undergraduate research assistant who was blind to study hypotheses came into the room to administer the experimental manipulation (i.e., Modes of Processing induction; Watkins et al. 2008). Processing modes were induced using the procedures outlined in Watkins et al. (2008). In this procedure, participants read through 30 scenarios. Instructions for reading each scenario vary depending on experimental group assignment to induce either analytic or experiential processing or control effects. There are 15 positive and 15 negative written scenarios across a range of settings (social, interpersonal, academic, employment), each approximately three sentences in length. All participants read through the same 30 scenarios, with instructions to spend a minute concentrating on each event. The order of the written scenarios was randomized so that there would be no more than three scenarios of the same valence presented consecutively.

In the analytic processing condition, participants were instructed as follows for each scenario: "I would like you to think about why it happened, and to analyze the causes, meanings, and implications of this event." In the experiential processing condition, participants were instructed as follows for each scenario: "I would like you to focus on how it happened, and to imagine in your mind as vividly and concretely as possible a "movie" of how this event unfolded, including how you felt moment-by-moment." In the control condition, participants were instructed as follows for each scenario: "I would now like you to spend a minute concentrating on this text. Specifically, I would like you to count the number of verbs that occur in the description of this event." Control group instructions were chosen to ensure that participants read the text without inducing either experimental processing mode. Prior to induction, all participants practiced adopting the assigned processing mode on the same (negative) practice scenario. For practice and target scenarios, participants were instructed to say aloud their reaction to the scenario based on the directions given for one minute and to stop when instructed.

After the experimental induction, the undergraduate research assistant left the room, and the first author administered a trauma-specific perseverative thinking interview (adapted version of the catastrophizing interview; Davey and Levy 1998; Vasey and Borkovec 1992) on their index interpersonal trauma. The catastrophizing interview assesses perseverative thinking about a worrisome topic, in this case the index trauma, in an iterative fashion by asking interviewees to elaborate their concerns repeatedly until they adequately addressed their concern. After, participants completed the BAI and PANAS-X (T2) to obtain a post-manipulation assessment of state anxiety

and state affect, respectively. The study concluded with inducing a positive mood state with a short story to remove potential negative residual effects from revisiting trauma memories. To induce positive mood, participants were asked to read a short positive story about a 76-year old grandmother who received her college degree after delaying her education for 42 years to raise a family. Following the completion of the study, participants were thanked for their participation and given a debriefing form.

Measures

Demographic Questionnaire Participants completed a demographic questionnaire created by the researchers to record age, ethnicity, race, marital status, sexual orientation, household income, and education level.

Traumatic Life Events Questionnaire Traumatic experiences and an index interpersonal traumatic event were identified using the Traumatic Life Events Questionnaire (TLEQ; Kubany et al. 2000). It is a 23-item broad-spectrum measure of trauma exposure. The first 22 items list behaviorally descriptive potential traumatic events (e.g., natural disaster, motor vehicle accident, sexual assault, physical abuse, war/combat exposure), and the 23rd item category represents "other events" with a list of examples. Each item asks respondents to identify how many times they have experienced that particular event using the following rating scale: *never, once, twice, three times, four times, five times,* and *more than five times*. The TLEQ has been demonstrated to be a comprehensive traumatic event assessment. In one study utilizing a clinical sample, when compared with the single-item traumatic event assessment in the Structured Clinical Interview for *Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition* (*DSM-IV*; SCID, First et al. 1998), the TLEQ produced a ninefold higher rate of traumatic event identification (Peirce et al. 2009). The TLEQ has also correctly identified individuals based on their trauma history. For example, 92 % of women in an intimate partner violence support group endorsed the item assessing physical abuse by a partner (Kubany et al. 2000). For the purposes of this study, only intentionally caused traumas (i.e., a traumatic event in which another human being inflicts physical or psychological injury on another human being) from the TLEQ were used to prescreen participants for inclusion criteria. Intentionally caused traumas were selected from the TLEQ using the same procedure as Frazier et al. (2009), with the exception of abortion, which is not conceptualized in this study as an intentionally caused trauma.

PTSD Checklist-Civilian Version The PTSD Checklist-Civilian Version (PCL-C; Weathers et al. 1994) is a 17-item self-report scale for post-traumatic stress based on *DSM-IV* criteria. Items are rated from 1 (*not at all*) to 5 (*extremely*). A total symptom severity score is obtained by summing the scores from each of the 17 items. Additionally, based on a 4-factor model of PTSD symptom clusters (Palmieri et al. 2007), items can be summed to create subscales for the re-experiencing symptom cluster ("Repeated, disturbing memories, thoughts, or images of a stressful experience from the past"), effortful avoidance symptom cluster ("Avoiding thinking about or talking about a stressful experience from the past or avoiding having feelings related to it"), emotional numbing symptom cluster ("Feeling emotionally numb or being unable to have loving feelings for those close to you"), and hyperarousal symptom cluster ("Feeling jumpy or easily startled"). A symptom severity score of 44 is recommended as a cut point for PTSD positive participants in community samples (Blanchard et al. 1996). The PCL-C demonstrates adequate test-retest reliability, ranging from r=.75 to r=.88 over a 1-week period and internal consistency ranging from .92 to .96 in community samples (Wilkins et al. 2011). Additionally, the PCL-C has shown convergent validity with other measures of post-traumatic stress and discriminant validity with other measures of separate psychological constructs (Wilkins et al. 2011). Internal consistency in this sample was α=.95.

Self-Compassion Scale The Self-Compassion Scale (SCS; Neff 2003) is a 26-item scale that measures beliefs and attitudes about self-compassion. It assesses three components of self-compassion, including the ability to treat oneself with kindness (self-kindness) versus critical self-judgment (self-judgment), seeing one's experiences as a part of a common shared humanity (common humanity) versus isolating one's experiences (isolation), and being able to hold one's thoughts in balanced awareness (mindfulness) versus over identifying with them (over-identification). Self-compassion is an overarching factor emerging out of the combination of subscale components (Neff 2003). Three subscales were used to assess components of self-compassion relevant to this study. Self-kindness is measured by five items (e.g., "I try to be loving toward myself when I'm feeling emotional pain"). Mindfulness is measured by four items (e.g., "When I'm feeling down I try to approach my feelings with curiosity and openness"). Common humanity is measured by four items ("When I'm down and out, I remind myself that there are lots of other people in the world feeling like I am"). Items are rated from 1 (*almost never*) to 5 (*almost always*) and summed to create subscale total scores, with higher scores indicating greater self-kindness and mindfulness. SCS subscales have demonstrated adequate internal consistency (self-kindness α=.78; mindfulness α=.75; common humanity α=.80, Neff 2003). Internal consistencies for self-kindness, mindfulness, and common humanity in this study were .88, .77, and .79, respectively.

Beck Anxiety Inventory The Beck Anxiety Inventory (BAI; Beck et al. 1993) was used to assess state anxiety. It is a 21-item self-report questionnaire used to measure the severity of an individual's anxiety. Items consist of questions pertaining to how the individual has been feeling in the last week (e.g., numbness and tingling, sweating not due to heat, fear of the worst happening). However, for the purposes of this study, the directions were adapted so that participants were asked to rate their immediate level of anxiety. Items are rated from 0 (*not at all*) to 3 (*severely*) and totaled to a maximum score of 63. Total scores between 0 and 7 represent a "minimal level of anxiety," between 8 and 15 are indicate "mild anxiety," between 16 and 25 suggest "moderate anxiety," and total scores between 26 and 63 are considered "severe anxiety." The BAI was designed for measuring anxiety that minimizes the overlap between depression and anxiety scales. That is, although other studies have shown that anxiety measures such as the State-Trait Anxiety Inventory are highly correlated with depression (Endler et al.1992), the BAI is less contaminated by depressive content. The BAI was created originally to include two components of anxiety: cognitive (i.e., fearful thoughts and impaired cognitive functioning) and somatic (i.e., physiological arousal; Beck et al. 1988). However, other factors have been used (e.g., Beck and Steer 1991; Beck et al. 1993), but in each case, the somatic subscale is emphasized as it is tapped by 15 of the 21 items. The BAI has demonstrated high internal consistency (α=.92) and test-retest reliability over 1 week (r=.75). Internal consistencies for time 1 and time 2 anxiety were .92 and .94, respectively.

Positive and Negative Affect Schedule- Expanded Form The Positive and Negative Affect Schedule- Expanded Form (PANAS-X; Watson and Clark 1999) was used to assess two broad, general factors of NA and PA, with ten items per scale. Each item is rated on a 5-point scale from 1 (*very slightly or not at all*) to 5 (*extremely*). A total mean score is created by summing all items corresponding to that scale and then dividing by the number of items on that scale, with higher scores indicating higher degrees of affectivity on that dimension. PA and NA scales of the PANAS-X have been shown to be reliable and valid across a variety of study populations (student, community samples, psychiatric patients) and time frames used to generate mood ratings (moment, today, past few days, past few weeks, past year, general; Watson and Clark 1999). The two general dimensions of PA and NA account for most of the variance in self-rated affect, approximately one half to three quarters of the common variance in mood (Watson and Tellegen 1985). Internal consistencies are high for both higher-order scales, generally ranging from .83 to .90 for PA, and from .85 to .90 for NA. The correlation between PA and NA scales is generally low, typically ranging from −.05 to −.35. The NA and PA scales have been used to validly assess state and trait affect and, most relevant to this study, fluctuations in mood (Watson and Clark 1999). Participants in this study were asked to rate their state affect at T1 and T2: "Indicate to what extent you feel this way right now, that is, at the present moment." Internal consistencies for T1 NA and PA in this sample were .78 and .94, respectively. Internal consistencies for Time 2 NA and PA in this sample were .85 and .95, respectively.

Data Analyses

A series of correlation analyses were conducted to examine associations between self-compassion variables (i.e., self-kindness, mindfulness, and common humanity) with post-traumatic stress symptoms and trauma processing outcomes (i.e., NA, PA, anxiety). In cases where T2 self-compassion variables were associated with trauma processing outcomes, the corresponding T1 self-compassion variable was used as a control to examine the unique association of the T2 self-compassion variable with trauma processing outcomes.

Results

Women reported experiencing numerous and severe interpersonal traumas with the modal trauma reported to be intimate partner violence by 82.54 % of the sample (n=52). Intimate partner violence was also the most frequently reported index trauma identified on the catastrophizing interview, reported by 44.44 % of participants (n=28). Adult sexual assault was the second most frequently reported index trauma (19.05 %, n=12), followed by adolescent sexual assault (13.70 %, n=8), child/adolescent physical abuse by caregivers (9.52 %, n=6), being robbed with a weapon (6.35 %, n=4), witnessing family violence (3.17 %, n=2), and being stalked (1.59 %, n=1). Two participants reported other types of intentionally caused traumas that fell into a different category: one reported being kidnapped at gunpoint; the other reported being the victim of attempted murder. Within each condition, index violent events were distributed relatively evenly. The last time the index violent event occurred averaged approximately 9.61 (SD=9.81) years prior to the interview, ranging from 3 months prior to 38 years. Many participants (n=17, 27 %) reported that the index trauma occurred within the last year, and the majority (n=33, 52.4 %) reported that the index trauma occurred within the last five years. Group differences did emerge with regard to time since the index violent event last occurred, F (2, 55.66)=3.54, p=.036. Specifically, Games-Howell post-hoc comparisons revealed that women in the control condition reported that their index violent event occurred longer ago than women in the analytic rumination condition (M difference=7.71, p=.029).

Post-traumatic stress symptom severity on the PCL (see Table 1) did not differ by condition, F(2, 61)=0.24, p=.789.

Table 1 Descriptive statistics of continuous variables (N=63)

Variable	Minimum	Maximum	Mean	Standard deviation
Total sample (n=63)				
PTSD symptom total	17	85	38.11	16.26
Mindfulness	1	5	3.37	0.96
Self-kindness	0.60	5	2.96	1.12
Common humanity	0.25	5	3.21	1.07
T2 anxiety	0	54	8.30	9.85
T2-negative affect	10	39	15.63	6.47
T2-positive affect	10	48	22.30	9.69
Analytic condition (n=21)				
PTSD symptom total	17	78	39.19	15.62
Mindfulness	1.25	4.75	3.42	0.81
Self-kindness	1	4.80	3.15	1.11
Common humanity	1.5	4.5	3.30	0.90
T2 anxiety	0	38	8.76	10.21
T2-negative affect	10	39	16.76	8.28
T2-positive affect	13	36	21.57	7.98
Control condition (n=21)				
PTSD symptom total	17	64	36.10	16.53
Mindfulness	1.5	5	3.18	0.84
Self-kindness	1	5	2.81	1.03
Common humanity	0.25	5	2.86	1.22
T2 anxiety	0	16	6.14	5.25
T2-negative affect	10	22	14.24	3.88
T2-positive affect	10	42	23.29	10.93
Experiential condition (n=21)				
PTSD symptom total	17	85	39.10	17.25
Mindfulness	1	5	3.5	1.19
Self-kindness	0.60	5	2.92	1.22
Common humanity	1.5	5	3.46	1.03
T2 anxiety	0	54	10	12.69
T2-negative affect	10	39	15.9	6.54
T2-positive affect	10	48	22.05	10.29

Using a cutoff score of 44, 32.3 % of participants would be classified as PTSD positive. This percentage is in the range of the conditional risk of PTSD given exposure to intentionally caused traumas (i.e., 26 %; Resnick et al. 1993). Self-kindness, mindfulness, and common humanity did not differ by condition (p values >.05). Consistent with the first hypothesis, greater self-kindness (r=−0.40, p=.001) and mindfulness (r=−.39, p=.002) were associated with less overall post-traumatic stress symptom severity. Neither self-kindness nor mindfulness were associated with intrusive symptoms or active avoidance (p values >.05). However, greater self-kindness was associated with less emotional numbing (r=−.50, p<.001) and hyperarousal (r=−.43, p<.001), and greater mindfulness was associated with less emotional numbing (r=−.47, p<.001) and hyperarousal (r=−.36, p=.005). Of note, common humanity was neither related to post-traumatic stress symptom severity nor the symptom clusters (p values>.05).

Before trauma processing, the average anxiety score on the BAI suggested a "minimal level of anxiety" and did not differ by condition, $F(2, 62)=0.31$, p=.733. The average NA ($F(2, 62)=0.70$, p=.499) and PA ($F(2, 62)=0.10$, p=.903) scores on the PANAS-X also did not differ by condition. After trauma processing, the average anxiety score on the BAI suggested "mild anxiety" (Table 1). Overall, anxiety significantly increased ($t(62)=3.43$, p=.001) and PA significantly decreased ($t(62)=5.37$, p<.001) from T1 to T2. Within group conditions, anxiety significantly increased for those in the analytic condition only ($t(20)=2.58$, p=.018), while PA significantly increased for all group conditions (p values=.002 to .024).

There was a trend in increase of NA from T1 to T2 ($t(62)=1.71$, $p=.093$).

At T1, greater self-kindness was associated with higher levels of PA ($r=.60$, $p=.004$), while greater mindfulness was associated with both higher levels of PA ($r=.60$, $p=.004$) and lower levels of NA ($r=-.46$, $p=.036$; see Table 2). At T2, greater self-kindness was associated with higher levels of PA ($r=.66$, $p=.001$), and lower levels of anxiety ($r=-.55$, $p=.010$) and NA ($r=-.74$, $p<.001$). At T2, greater mindfulness also was associated with lower levels of anxiety ($r=-.66$, $p=.001$) and NA ($r=-.76$, $p<.001$) and higher levels of PA ($r=.67$, $p=.001$). Mindfulness continued to be associated with lower levels of NA even after controlling for T1 NA ($r(18)=-.68$, $p=.001$); however, the relation between PA and both self-kindness ($r(18)=.34$, $p=.139$) and mindfulness ($r(18)=.37$, $p=.105$) was no longer significant after controlling for T1 PA. Common humanity was not related to any trauma processing outcomes (p values $<.05$).

At T1, greater self-kindness was associated with less anxiety ($r=-.44$, $p=.048$), whereas greater mindfulness was associated with higher levels of PA ($r=.45$, $p=.041$). At T2, greater self-kindness was associated with less NA ($r=-.57$, $p=.007$). At T2, greater mindfulness was associated with lower levels of anxiety ($r=-.46$, $p=.037$) and NA ($r=-.67$, $p=.001$) and higher levels of PA even after controlling for T1 PA ($r(18)=.47$, $p=.036$). Common humanity was not related to any trauma processing outcomes (p values $<.05$).

Neither self-kindness nor mindfulness was associated with NA, PA, or anxiety at T1. At T2, greater self-kindness was associated with higher levels of anxiety ($r=.48$, $p=.003$) accompanied by higher levels of PA ($r=.50$, $p=.021$). Also, greater common humanity was associated with higher levels of T2 anxiety ($r=.62$, $p<.01$).

Discussion

The aim of this study was to examine positive aspects of self-compassion with trauma processing outcomes of NA, PA, and anxiety under treatment relevant processing conditions (i.e., analytic processing and experiential processing). Traditional analytically focused CBTs are effective and efficacious for treating post-traumatic stress (Powers et al. 2010), though third-wave CBT treatments show considerable promise in alleviating distress (Kearney et al. 2012; Kimbrough et al. 2010; King et al. 2013). However, a better understanding of how a self-compassionate attitude interacts with such treatment conditions may help clinicians determine the best treatment for each individual client, or may elucidate specific self-compassion characteristics that can be enhanced to achieve optimal clinical outcomes.

Results revealed that a greater disposition toward self-compassion is associated with less post-traumatic symptomatology. Furthermore, processing conditions indicate unique effects of self-kindness and mindfulness on trauma processing outcomes. Consistent with the first hypothesis, it was found that greater self-kindness and mindfulness were associated with less overall post-traumatic stress symptoms, as well as less hyperarousal and emotional numbing. Of note, common humanity was neither related to post-traumatic stress symptom severity nor the symptom clusters, which suggests that common humanity may not be specifically relevant to post-traumatic stress symptoms. These findings are partially consistent with another study that found the avoidance symptom cluster was associated with overall self-compassion (Thompson and Waltz 2008). It may be that once self-compassion is broken down into its component scales, specific relations between self-compassion components and post-traumatic stress are made prominent. Thus, self-kindness and mindfulness may allow for experiential awareness and tolerance of negative internal experiences, as opposed to passively avoiding them through emotional numbing, and this may allow for corrective experiences that reduce hyperarousal.

In the control condition, when participants were instructed in such a way as to not induce either analytic or experiential processing, it was found that both greater self-kindness and mindfulness predicted less anxiety, less NA, and more PA after trauma processing (T2). Before trauma processing (T1), self-kindness was associated with greater PA. At T1, mindfulness was also associated with greater PA, but less NA. Mindfulness continued to predict T2 NA, even after controlling for T1 NA. However, the relations between both T2 self-kindness and T2 mindfulness with T2 PA disappeared after controlling for T1 PA. Overall, this suggests that mindfulness and self-kindness were associated with higher PA at T1 that was maintained at T2. Additionally, mindfulness and self-kindness reduced anxiety and NA at T2.

In the analytic processing condition, greater self-kindness predicted less T2 NA. Greater mindfulness predicted less anxiety, less NA, and more PA at T2. The positive relation between mindfulness and PA at T2 continued to remain significant after controlling for T1 PA. Thus, mindfulness appeared to exert a stronger effect on trauma processing outcomes under conditions of analytic processing. During analytic processing, self-kindness may work in conjunction with mindfulness to decrease anxiety and NA, and increase PA, potentially by reducing the tendency to perseverate on self-critical thoughts and negative internal experiences.

In the experiential condition, greater self-kindness predicted greater anxiety and PA at T2, which is partially consistent with the hypothesis that self-kindness would be associated with less negative trauma processing outcomes under experiential processing conditions. Mindfulness was not related to any trauma processing outcomes. This finding may suggest that the self-compassion component of mindfulness does not add

Table 2 Correlation matrix of self-compassion components and pre- and post-trauma processing outcome variables by condition (N=63)

	Anxiety		Negative affect		Positive affect	
	Pre	Post	Pre	Post	Pre	Post
Control (n=21)						
1. Self-kindness	−.00	−.55*	−.33	−.74***	.60**	.66**
2. Mindfulness	−.36	−.66**	46*	−.76***	60**	.67**
3. Common humanity	13	−.06	02	−.27	24	.14
Analytic (n=21)						
1. Self-kindness	44*	−.35	19	−.57**	26	.32
2. Mindfulness	41	−.46*	14	−.69**	45*	.62**
3. Common humanity	14	−.13	18	−.38	16	.38
Experiential (n=21)						
1. Self-kindness	12	.48*	05	.20	37	.50*
2. Mindfulness	13	.23	14	.14	42	.42
3. Common humanity	18	.62**	16	.32	11	.41

*p<.05; **p<.01; ***p<.001

anything unique in conditions that already foster mindful awareness, though greater self-kindness may allow for greater tolerance of anxiety. Previous clinical studies have found that mindfulness exercises that involve attending to bodily states can increase anxiety by triggering traumatic memories of an assault (King et al. 2013). Self-kindness may provide the sensitivity, empathy, and overall unconditional self-regard that allow one to tolerate such negative internal experiences during such recall. Interestingly, greater common humanity was associated with greater levels of T2 anxiety. It may be that under conditions of experiential processing, recognizing that one's experiences are shared by others increases one's awareness of the dangerousness of the world, and thus, increases one's level of anxiety.

Taken together, these results suggest that it may be beneficial to use third-wave CBT approaches that foster an attitude of self-kindness and mindfulness as a prelude and/or adjunct to traditional analytically focused CBTs for PTSD. Self-kindness may decrease self-critical thoughts and a judgmental attitude, which may increase tolerance during exposures and decrease distress over time. Mindfulness may increase experiential awareness and psychological flexibility during cognitive restructuring that allow for corrective experiences and reduce distress. Alternatively, it may be beneficial to use treatments that incorporate self-compassion for clients who do not respond to traditional CBTs or for those whose characteristics (e.g., symptom presentation, traits, processing style) may suggest a greater fit for experientially focused treatments.

This study is one of the first of its kind to consider how individual differences in how one relates to oneself may affect post-traumatic distress under treatment-relevant conditions. This experimental study is a first step in understanding how one can enhance individual client characteristics and/or tailor treatment for optimal clinical outcomes for trauma survivors. Although this study sheds some light on understanding the effects of self-compassion under specific processing conditions for post-traumatic stress, there are inherent limitations. The study sample was not drawn from a clinical population of those with PTSD and only consisted of women. Thus, the study findings may not generalize to clinical populations or men. Also, the processing style induction was an analog "intervention" and self-compassion characteristics may perform differently under structured treatment protocols. On a related note, the analog intervention may have been too limited in time such that the time period between delivering the induction and assessing distress was too short to observe clinically meaningful symptom fluctuations. Symptom changes may be more pronounced and clinically meaningful after repeated delivery of an intervention and a greater lag time for the symptom assessment. However, it is important to note that self-compassion did play a positive role in just one analog "session," as noted by the unique effect self-compassion played under different conditions. Future research should examine how self-compassion trait characteristics enhance or hinder recovery for larger clinical samples undergoing different types of therapy. It may also be of interest to examine whether and how self-compassion changes as a function of treatment components (e.g., mindfulness skills) to enhance treatment protocols for trauma clients.

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Appendix

Outline of Study Procedure

1. Pre-screen
    a) Assess exposure to interpersonal trauma and exclusionary criteria
2. Online questionnaires (baseline)
    a) Demographic questionnaire
    b) Self-compassion scale (Neff 2003)
    c) Trauma history (TLEQ; Kubany et al. 2000)
    d) PTSD Checklist-Civilian Version (Weathers et al. 1994)
3. Lab session (T1 and T2)
    a) Beck Anxiety Inventory (BAI; Beck et al. 1993)
    b) Negative affectivity (PANAS-X; Watson and Clark 1999)
    c) Processing mode induction (Watkins et al. 2008)
    d) Catastrophizing interview (CI; Davey and Levy 1998; Vasey and Borkovec 1992)
    e) Beck Anxiety Inventory
    f) Negative affectivity
    g) Induction of positive mood state story

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