Mindfulness, Self-compassion and Post-traumatic Stress Disorder

Kirsty Banks

May 2015

Submitted in part fulfilment of the degree of Doctorate in Clinical Psychology at the University of Edinburgh

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Firstly, I’d like to thank all the participants that took the time and interest in the study to take part, without which this work would not have been possible. They took the time to reflect on their personal life experiences and to share them for this research which is greatly appreciated.

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In memory of Fara McAfee, I owe her my thanks for being my anchor at the start of this journey. The dedication and compassion she showed in her extensive work with complex trauma continues to be an inspiration.

To my other half, my friends, family and fellow trainees thank you for all your understanding, support and for always making me smile.
Thesis Overview

Thesis Introduction. Written in accordance with the British Psychological Society Editorial Style Guide.
Word count- 1,225

Written in accordance with the Journal of Clinical Psychology author guidelines (see Appendix 1.).
Journal of Clinical Psychology ISI Journal Citation Reports Ranking 2013: 39/111 (psychology/clinical)
Word count- 6,370

Research Study: The Impact of Difficult Life Events on our Experience of Self-compassion, Post-traumatic Stress and Growth
Written in accordance with the Journal of Traumatic Stress author guidelines (see Appendix 2.).
Journal of Traumatic Stress ISI Journal Citation Reports Ranking 2013: 41/111 (psychology/clinical)
Word count- 5,753
Thesis Abstract

Background: Post-traumatic stress and exposure to early traumatic events are often characterised by negative self-cognitions and experiences of shame, guilt or blame. These symptoms are theoretically linked to the concept of self-compassion which is an important factor in affect regulation, and is predictive of mental wellbeing and psychological distress. Interventions aimed at increasing acceptance, non-judgement and self-compassion such as mindfulness may be useful in the treatment of post-traumatic stress symptoms.

Methods: The first part of this portfolio presents a systematic review which aimed to collate and evaluate the existing research for the use of mindfulness based interventions to treat post-traumatic stress symptoms. The search process involved a systematic search of relevant research databases, hand search of relevant journals, and relevant authors were contacted. The second part of this portfolio presents a quantitative research study which explored the relationship between the experience of childhood trauma and self-compassion; and whether self-compassion was predictive of post-traumatic stress and growth in an adult clinical sample. Data were collected through postal survey and analysed using correlation and hierarchical regression analysis.

Systematic Review Results: The systematic review resulted in 12 studies which met eligibility criteria, the majority of studies indicated positive outcomes with improvements in post-traumatic stress symptoms, particularly in reducing avoidance. Many of these studies lacked methodological rigour and further studies with more robust research design are required.

Research Study Results: The quantitative study showed that greater experience of childhood emotional abuse, neglect, punishment and sexual abuse were significantly correlated with lower self-compassion in adulthood. Hierarchical regression showed that self-compassion
was predictive of total post-traumatic stress symptoms, post-traumatic avoidance and intrusion when age, gender, exposure to traumatic events and childhood trauma were controlled. The experience of post-traumatic growth showed no significant relationship with self-compassion.

Conclusions: Studies indicate that mindfulness interventions show promise for the treatment of PTSD symptoms, although further research with more robust methodology is needed. Greater experience of childhood abuse is related to lower self-compassion in adulthood and lower self-compassion is predictive of higher PTSD avoidance and intrusion symptoms. This suggests that future research investigating self-compassion interventions may be beneficial in treating PTSD.
This introduction presents the theoretical background and current context for this research portfolio. It aims to assist the reader to navigate through the thesis project which consists of a systematic review of the research on mindfulness based interventions for treating post-traumatic stress symptoms and an empirical research study investigating the relationship between childhood trauma, self-compassion, post-traumatic stress and growth.

**Post-traumatic Stress Disorder**

Post-traumatic stress disorder (PTSD) is characterized by symptoms of hyper-arousal, intrusion, avoidance, and negative cognitions and mood, which occurs following exposure to traumatic life events (American Psychiatric Association, 2013). An estimated 25-30% of individuals who are exposed to a traumatic life event will go on to develop PTSD (National Institute of Clinical Excellence, 2005). PTSD has previously been defined as an anxiety disorder, associated with feelings of ‘fear, helplessness and horror’ (American Psychiatric Association, 2002); although recently the diagnostic criteria for PTSD have been updated to include the presence of negative cognitions and mood. This change is following research in the field which has highlighted the role of emotions such as shame and guilt (Oktedaalen, Hoffart & Langkass, 2014), and negative cognitions including self-blame (Barton, Boals & Knowles, 2013) and self-criticism in maintaining PTSD (Harman & Lee, 2010). PTSD symptoms can be variable in terms of impact, severity, and duration; a chronic form of complex PTSD may occur following prolonged or repeated traumatic events such as childhood abuse (Cloitre et al., 2009). Complex PTSD may be further characterized by difficulties in affect regulation, interpersonal relationships and altered perception of identity (Herman, 1999).
The cognitive model of PTSD largely dominates the literature and is one of the most pervasive models for conceptualizing the development and maintenance of the disorder (Ehlers & Clark, 2000). The model proposes two main perpetuating factors which lead to a perceived sense of current threat: negative appraisals of the traumatic event and disrupted processing of trauma memories through avoidance. Ehlers and Clark (2000) propose that negative appraisals about the self during the trauma and post trauma may maintain PTSD by providing a sense of current threat to the self. The cognitive model has informed the main approaches for intervention such as Prolonged Exposure (PE), Cognitive Behavioural Therapy (CBT), and neurobiological approaches such as Eye Movement Desensitisation and Reprocessing (EMDR). There is a significant evidence base for these approaches and the effectiveness of these interventions has been well documented (Powers, Halpern, Ferenschak, Gillihan & Foa, 2010; Mendes, Mello, Venture, Passarela & Mari, 2008; Seidler & Wagner, 2006).

The focus of interventions for PTSD has typically been on the use of exposure techniques which are based on an anxiety paradigm in which the aim is to acclimatize individuals to feelings of anxiety and fear. However for some individuals who experience high levels of shame rather than anxiety these techniques may actually attenuate negative symptoms, particularly as individuals high in shame are prone to self-criticism and have a low ability to self soothe (Lee, 2009). A recent study found that in a representative sample of people with PTSD referred to a trauma clinic, less than 50% experienced anxiety as their primary emotion and the rest experienced sadness, disgust or anger as their primary emotion; exposure techniques were significantly less effective for the non-anxiety based PTSD group (Power & Fyvie, 2013). This is an important finding for individuals who experience emotions other than anxiety following traumatic events as exposure therapy may not be effective. Consequently, it is important for interventions to be further developed and researched to
address symptoms of negative cognitions and mood, in line with the revised diagnostic criteria. Furthermore, existing treatments for PTSD, including CBT and exposure techniques have been criticized for not going far enough to treat interpersonal and affect regulation difficulties seen in complex PTSD (Cloitre et al., 2010). Complex PTSD is not currently recognized in the diagnostic manual as a unique condition. However, individuals who have experienced prolonged traumatic events may require special considerations for treatment and therefore understanding the effects of repeated trauma is valuable to inform interventions for this client group.

So called ‘third wave’ therapeutic approaches have focused on enhancing existing cognitive and behavioural approaches with inclusion of concepts such as non-judgment, regulation of emotion and acceptance of negative thoughts and emotions rather than focusing on changing or engaging with the content of such thoughts. Approaches such as mindfulness and compassion focused therapy are two such approaches which may be useful in our understanding and treatment of PTSD.

**Mindfulness**

Mindfulness is described as ‘the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment’ (Kabat-Zinn, 2003, p.145). Mindfulness therefore promotes mental wellbeing by changing the relationship individuals have with their thoughts and increasing their ability to observe thoughts and emotions in an accepting and non-judging way. Theoretical reviews have outlined the argument for use of mindfulness techniques as a means of reducing avoidance, aiding emotion regulation and increasing distress tolerance in traumatised individuals; suggesting that mindfulness may be useful to facilitate existing interventions for PTSD such as CBT or PE (Follette, Palm & Pearson, 2006). Mindfulness has been shown to
be related to PTSD symptoms; in particular the mindfulness concept of non-judgment of experience has been shown to account for a unique proportion of the variance in PTSD avoidance symptoms (Thomson & Waltz, 2010). Whilst research has started to explore the effectiveness of mindfulness interventions in the treatment of PTSD, this work has not been reviewed systematically, and an overview of the existing research would help to inform future work.

Self-compassion

A concept which is closely linked theoretically to mindfulness is that of self-compassion, as both stem from Buddhist traditions (Baer, 2010). Research has shown that increases in mindfulness are predictive of increases in self-compassion (Birnie, Speca & Carlson, 2010). Neff (2003) describes self-compassion as consisting of three components (a) self-kindness, which encourages abilities to self-soothe and reduce self-critical thinking (b) mindfulness, which refers to being in the moment rather than ruminating on negative thoughts; and (c) common humanity, which acknowledges the experience of failure as part of the shared human experience and provides a balanced perspective of personal limitations. Compassion Focused Therapy (CFT) works within a traditional cognitive framework where dysfunctional and self-attacking thoughts about traumatic events are reframed in a compassionate way so that self-soothing feelings predominate, suggesting this maybe an effective intervention for PTSD (Lee, 2012). Thomson and Waltz (2008) explored the effect of self-compassion on post-traumatic stress symptoms (PSS); they found a significant correlation between low self-compassion and high avoidance symptoms, although no relationship between self-compassion and hyper-arousal or re-experiencing. This study used a non-clinical student sample, and as yet self-compassion and PTSD symptoms have not been explored in adult clinical samples. Understanding the relationship between self-compassion and PTSD
symptoms is useful to improve our knowledge of what factors play a role in maintaining PTSD and therefore informing assessment and treatment planning with this population.

The aims of the systematic review were to explore the existing evidence for using mindfulness based interventions to treat symptoms of PTSD. The secondary aims were to explore attrition rates, adverse effects, resource implications, and longitudinal outcomes of such interventions. The research study aimed to explore whether self-compassion in adulthood is related to experiences of childhood abuse and trauma, and whether self-compassion is related to post-traumatic stress symptoms and post-traumatic growth.
Systematic Review


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Written in accordance with author guidelines for the Journal of Clinical Psychology (see Appendix 1)

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Abstract

Objective: This systematic review aimed to collate and evaluate the existing research for the use of mindfulness based approaches to treat post-traumatic stress disorder. Primary objectives were to explore the effects of mindfulness based approaches on post-traumatic stress symptoms and associated psychological distress; with secondary objectives to explore the attrition rates, adverse effects, resource implications and long term outcomes of such interventions.

Method: Research databases, EMBASE, OVID MedLine, Psycinfo, CINAHL and PILOTS were systematically searched, relevant authors in the field were contacted and a hand search of relevant journals was conducted.

Results: The search resulted in 12 studies that met eligibility criteria. Many of these studies lacked methodological rigor. The majority of studies indicated positive outcomes with improvements in post-traumatic stress symptoms, particularly in reducing avoidance.

Conclusions: The preliminary evidence for the use of mindfulness based approaches to treat post-traumatic stress symptoms is encouraging, although further studies with more robust research design are required.
Introduction

Post-traumatic stress disorder (PTSD) is defined as a presentation of characteristic symptoms following direct exposure, witnessing or learning of an event that involves actual or threatened death or serious injury or harm to self or others (American Psychiatric Association, 2013). PTSD is characterized by four clusters of symptoms which can be summarized as- re-experiencing traumatic events which may occur through flashbacks or nightmares, negative cognitions and mood, avoidance of trauma related cognitions and triggers which may present as dissociation or emotional numbing; and hyper-arousal such as, hyper-vigilance to threat, irritability and sleep problems (APA, 2013). PTSD symptoms can be variable in terms of impact, severity, and duration; many researchers have suggested that a chronic form of complex PTSD may occur following prolonged or repeated traumatic events (Cloitre et al., 2009). PTSD is a significant health issue: it has been estimated that 25-30% of people who experience a traumatic life event go on to develop PTSD (National Institute of Clinical Excellence, 2005). A recent study highlighted the high prevalence rate of trauma symptoms amongst mental health service users: 89% of a representative sample of individuals referred to primary care psychology reported exposure to at least one traumatic life event and 51% met the screening criteria for PTSD despite trauma not always being the primary reason for referral (Noel, Gillanders & Power, 2012).

PTSD Interventions

The cognitive model of PTSD largely dominates the literature and is one of the most pervasive models for conceptualizing the development and maintenance of the disorder (Ehlers & Clark, 2000). The model proposes two main perpetuating factors which lead to a perceived sense of current threat: negative appraisals of the traumatic events and disrupted processing of trauma memories through avoidance. The cognitive model has informed the
main approaches for intervention such as Prolonged Exposure (PE), Cognitive Behavioral Therapy (CBT), and neurobiological approaches such as Eye Movement Desensitization and Reprocessing (EMDR). There is a significant evidence base for these approaches and the effectiveness of these interventions has been well documented (Powers, Halpern, Ferenschak, Gillihan & Foa, 2010; Mendes, Mello, Venture, Passarela & Mari, 2008; Seidler & Wagner, 2006). However attrition rates for these treatments are often high; a review of 55 empirical studies of CBT and EMDR found that it was not uncommon for drop-out rates to be as high as 50% (Schottenbaurer, Glass, Arnkoff, Tendick & Gray, 2008). Clinical trials have also shown that a subgroup of PTSD patients may not benefit from CBT or PE approaches, and a substantial amount of participants have residual symptoms post treatment (Bradley, Greene, Russ, Dutra & Westen, 2005). Becker, Zayfert and Anderson (2004) surveyed 852 psychologists working with trauma, and found that exposure techniques were highly under-utilized and widely unaccepted in clinical practice; this was due to a reported lack of training or experience and perceptions about contraindications of using exposure, including increased symptoms of dissociation, re-experiencing, anger and suicidality. Therefore it is important that interventions are further developed to ensure they are acceptable and feasible for implementation in clinical practice and effective for the majority of individuals.

Previous diagnostic criteria for PTSD characterized it as an anxiety disorder and therefore interventions have traditionally focused on exposure techniques (APA, 2000). However the diagnostic criteria for PTSD have been updated to include the presence of negative cognitions and mood which reflects the wide range of different emotions, besides anxiety, that may present as part of PTSD (APA, 2013). It is recognized that the emotions experienced by individuals with PTSD may be variable, depending on the type of traumatic event experienced (Amstadter & Vernon, 2008). A recent study found that in a representative sample of people with PTSD referred to a trauma clinic, less than 50% experienced anxiety as
their primary emotion and the rest experienced sadness, disgust or anger as their primary emotion; the use of exposure techniques were significantly less effective for the non-anxiety based PTSD group (Power & Fyvie, 2013). This is an important finding for individuals who experience emotions other than anxiety following traumatic events as exposure therapy may not be effective, and may even attenuate negative emotions. Consequently, it is important for interventions to be further developed and researched to address symptoms of negative cognitions and mood.

Emotions such as shame are an important contributing factor for the development and maintenance of PTSD (Leskela, Dieperink & Thuras, 2002). Lee, Scragg and Turner (2001) have proposed a clinical model for shame based, and guilt based, PTSD. The authors propose that emotions such as guilt, shame and humiliation perpetuate PTSD symptoms and give a sense of current threat through attacking personal integrity. They suggest that high levels of guilt and shame prevent individuals from presenting to services for treatment and may contribute to early drop-out from therapy (Lee et al., 2001). Shame is an emotion that is characterized by harsh judgment of oneself and the use of avoidance, both which may serve as safety behaviors (Gilbert, 2009). One technique which has been applied to reduce avoidance whilst acknowledging difficult emotions and thoughts in a non-judging manner is mindfulness. Mindfulness is an approach which aims to increase acceptance and therefore it may be useful for working with negative cognitions such as self-blame and negative mood, including shame or guilt.

**Mindfulness**

Mindfulness is described as ‘the awareness that emerges through paying attention on purpose, in the present moment, and non-judgmentally to the unfolding of experience moment by moment’ (Kabat-Zinn, 2003, p.145). Mindfulness therefore promotes mental wellbeing by
changing the relationship individuals have with their thoughts and increasing their ability to observe thoughts and emotions in an accepting way. Mindfulness has been widely researched in psychiatric, physical health, and healthy populations (Baer, 2003). Meta-analytic studies have shown mindfulness based approaches to be effective for stress reduction (Chiesa & Serretti, 2009) and for anxiety and depression (Hofmann, Sawyer, Witt & Oh, 2010). Mindfulness practice originates from Buddhism, although mindfulness techniques have been integrated with western approaches. Mindfulness has been incorporated into a number of so called ‘third wave’ therapeutic approaches including Mindfulness Based Stress Reduction (MBSR), Mindfulness Based Cognitive Therapy (MBCT), Acceptance and Commitment Therapy, and Dialectical Behavior Therapy (Baer, 2003).

The most commonly cited mindfulness approach is Mindfulness Based Stress Reduction (MBSR). MBSR is delivered in a group setting over eight weekly sessions lasting 2 to 2.5 hours each, with a full day session around week six. The intervention is multifaceted and consists of mindfulness meditation, experiential exercises, Hatha yoga, discussion about stress and coping, and regular homework tasks including daily practice of mindfulness (Kabat-Zinn, 1990). Mindfulness Based Cognitive Therapy (MBCT) is based on MBSR, although incorporates a cognitive component; focus is placed on increasing awareness of thoughts and feelings with an emphasis on changing the relationship an individual has with their thoughts rather than changing or challenging the content of the thoughts (Segal, Williams & Teasdale, 2012). MBCT was developed originally as an intervention for recurring depression, and is a manualized program of eight weekly classes plus one all-day session.

Mindfulness and PTSD
Mindfulness has recently received increased attention within the research on PTSD. Theoretical reviews have outlined the argument for the use of mindfulness techniques as a means of reducing avoidance, aiding emotion regulation and increasing distress tolerance in traumatized individuals (Follette, Palm & Pearson, 2006). It has been hypothesized that mindfulness may therefore be a useful addition to existing interventions such as CBT or PE (Follette et al., 2006). Research has shown that an individual’s ability to be mindful is predictive of PTSD symptoms; in a study of 124 urban fire-fighters increased mindfulness was associated with fewer symptoms of PTSD, and lower levels of depression (Smith et al., 2011). In particular the mindfulness concept of non-judgment of experience has been shown to account for a unique proportion of the variance in PTSD avoidance symptoms (Thomson & Waltz, 2010). Similarly another study found that when controlling for negative affect and the extent of trauma exposure the mindfulness concept of accepting thoughts without judgment was significantly associated with symptoms of PTSD (Vujanovic, Youngwirth, Johnson & Zvolensky, 2009). This emerging literature seems to suggest that taking a mindful, non-judgmental stance towards traumatic experiences could reduce traumatic stress symptoms, in particular reducing avoidance symptoms may then allow for further psychological therapeutic work to progress.

There is an alternative argument that mindfulness based approaches may exacerbate trauma symptoms. It has been suggested that bringing awareness to the present moment and reducing avoidance may trigger distressing flashbacks or intrusive thoughts and memories (Lustyk, Chawla, Nolan & Marlatt, 2009). A review of the literature exploring the adverse effects of mindfulness meditation (MM) found that in some studies MM actually increased experiences of depersonalization and derealization, and may therefore lead to greater experiences of dissociation in individuals with PTSD; the authors of this review suggest that MM should only be practiced with this population under supervision or by adequately trained
experienced practitioners so that any potential adverse effects can be monitored and controlled (Lustyk et al., 2009). Dutton, Bermemudez, Matas, Majad & Myers (2011) studied the feasibility of MBSR for individuals with PTSD by conducting focus groups with residents of domestic violence shelters; the qualitative feedback highlighted concerns about mindfulness techniques, particularly discomfort with having to lie down, close one’s eyes and focus on body sensations. They adapted a mindfulness intervention using sitting meditations with eyes open as an alternative and there was positive qualitative feedback for the intervention (Dutton et al., 2011). It may be that mindfulness approaches are more accessible for this population when tailored to meet individual needs and when appropriately supervised.

Current Review

A systematic review of mind-body approaches for PTSD was published in 2013; this review incorporated interventions such as yoga, MBSR, meditation, tai chi and qigong (Kim, Schneider, Kravitz, Mermier & Burge, 2013). The review identified 16 relevant studies (6 randomized controlled trials [RCTs]), the majority of which reported improvements in stress, depression and PTSD symptoms. Improvements were largely sustained in studies which reported long term follow up ranging between 3 and 15 months. This previous review involved adolescent and adult samples, and only included three studies of mindfulness based interventions. There has recently been a rapid increase in the published empirical research studies examining mindfulness based interventions for PTSD however this research has not yet been reviewed systematically. This current systematic review aimed to collate the existing quantitative evidence for the use of mindfulness based interventions in reducing symptoms of PTSD in adults. The secondary aims of this review were to consider the resource implications, adverse effects, and attrition rates of mindfulness based approaches in PTSD.
Methods

The systematic search of the literature was conducted during October 2014. The databases searched included Psycinfo (1806 to October, week 2, 2014), Embase (1980 to 2014, week 41), OVID Medline (1946 to October, week 2, 2014), Published International Literature on Traumatic Stress (PILOTS) (1871- current) and the Cumulative Index to Nursing Allied Health Literature (CINAHL Plus). Psycinfo, Embase and OVID Medline were searched with the terms ‘PTSD’ OR ‘post traumatic stress disorder’ OR ‘posttraumatic stress disorder’ OR ‘traumatic stress’ AND ‘mindful*’. PILOTS was searched with the term ‘mindful*’. CINAHL was searched with the terms ‘stress disorder’ OR ‘post-traumatic’ AND ‘mindfulness’. Relevant reviews and publications were hand searched and contributors in the field were contacted about ongoing and unpublished work.

Selection Criteria

The eligibility criteria for this review were determined by initially forming a working definition of the term mindfulness based intervention. Mindfulness practice is multifaceted and may consist of multiple components, including meditation, experiential exercises, breathing and movement. Kabat-Zinn states ‘(mindfulness) is not limited to the operationalization of particular techniques… they are the menu, so to speak, not the meal’ (Kabat-Zinn, 2003 p.147). Several studies focus on one aspect of mindfulness, particularly teaching one particular form of meditation. For the purpose of this review mindfulness based interventions will exclude those which focus on one specific type of meditation alone i.e. transcendental, mantra based, loving kindness etc. As the aim of this review was to explore the existing research on mindfulness based approaches for treating PTSD symptoms, only studies which used an objective, standardized measure of PTSD symptoms were included, therefore it was out-with the scope of this current review to include qualitative studies.
Studies were selected that met the following inclusion criteria—

- Intervention that is mindfulness based.
- Adult sample aged ≥18 years.
- Used a reliable and validated outcome measure of PTSD pre- and post-intervention.
- Published in English.

Studies were excluded according to the following exclusion criteria—

- Mixed intervention studies i.e. mindfulness combined with PE, CBT, EMDR.
- Used only specific types of meditation- transcendental, loving kindness, mantrum based.
- Used qualitative analysis only.
- Did not use a reliable and validated outcome measure of PTSD pre- and post-intervention

Quality Criteria

The eligibility criteria allowed a mix of research designs to be included in this review e.g. randomized controlled trials, controlled trials, cohort and observational studies. When considering a method for reviewing the quality of each study, a number of existing checklists and guidelines were consulted, including those from the Scottish Intercollegiate Guidelines Network (SIGN, 2014) and Cochrane (Cochrane, 2011). The majority of quality criteria checklists are developed specifically to evaluate one research design. A review of 60 quality assessment tools for evaluation of non-randomized studies and mixed study designs identified 6 tools suitable for systematic reviews (Deeks et al., 2003).

One of these tools is the Downs and Black (1998) checklist, a tool specifically developed for the review of randomized and non-randomized studies (see Appendix 3.). The checklist
provides a profile of quality scores, it includes 27 items distributed between five subscales-reporting (10 items), external validity (three items), internal validity-bias (seven items), internal validity-confounding (six items), and power (one item). The checklist also provides a total score allowing for comparison and interpretation of studies according to methodological quality. All items are rated 1-yes (criteria met), 0-no (criteria not met), 0-unable to determine, except for the rating of confounding factors (item 5), which is rated 2-yes (criteria fully met), 1-(criteria partially met), 0-no (criteria not met).

The only change made to the tool was with regard to question 27; instead of rating power on a 5 point Likert scale, the study was either rated 1-yes power was sufficient (1-β = 0.8), 0-no study was underpowered. Therefore the total score possible to achieve with this tool is 28.

The total score, termed the quality index score, has been shown to have high internal consistency, good inter-rater and test-retest reliability and good face and criterion validity (Downs & Black, 1998). For the purpose of this review the quality index scores were classified so that a score of ≥70% was classed as ‘good’ quality, ≥50% was classed as ‘fair’ quality and <50% was classed as ‘poor’ quality.

Results

The database search identified a total of 707 studies. A hand search was also conducted by searching the journals, Mindfulness and The Journal of Clinical Psychology and searching the reference lists of relevant theoretical reviews or chapters published in the area. An additional three studies were identified through the hand searching process. After duplicates were removed there were 497 studies remaining, the titles of which were reviewed and 427 studies were excluded for not being relevant. The abstracts of the remaining 70 studies were then reviewed and a further 43 studies were excluded for not meeting eligibility criteria. At this stage reasons for exclusion included: the study being theoretical rather than empirical, no
reliable, validated measure of PTSD being used, qualitative studies, and studies which used combined interventions e.g. mindfulness and EMDR, or interventions which included only one aspect of mindfulness e.g. loving kindness meditation.

There were two studies which were conference abstracts only and upon further investigation were not published in full text; these studies were excluded as there was not enough information available regarding the methodology and results (Bremner et al., 2011; Dempsey et al., 2014). This left 25 studies which were subject to full text review. At this stage a further hand search was carried out of the reference lists of all 25 studies, this did not result in any unique studies being identified. 11 studies were excluded following full text review as they did not meet the inclusion/ exclusion criteria (see Table 1). Therefore 14 studies met the full eligibility criteria for inclusion in the review, two of which were longitudinal follow up studies of original projects which were already included in the review (Branstrom, Kvilemo & Moskowitz, 2012; Earley et al., 2014); as such these studies were considered together, resulting in 12 unique studies (see Table 2).

At this stage authors who had published several studies or had published theoretical reviews in the area were contacted to enquire about any relevant unpublished research for inclusion in the review. We emailed eight authors during October and November 2014 although this did not add any further studies for inclusion. An overview of the search and selection procedure is provided in a flow chart based on the PRISMA statement (Mohar, Liberati, Tetzlaff & Altma, 2009) (see Figure 1).
Table 1.

*Articles Excluded Following Full-Text Review*

<table>
<thead>
<tr>
<th>Study</th>
<th>Reason for Exclusion</th>
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<tbody>
<tr>
<td>Blankenship (2014)</td>
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<td>PTSD case study- no formal quantitative PTSD outcome measure used</td>
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<tr>
<td>Boden et al. (2012)</td>
<td>CBT intervention- not mindfulness based</td>
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<td>Dutton, Bermudez, Matas, Majid &amp; Myers (2013)</td>
<td>Qualitative study only</td>
</tr>
<tr>
<td>Khong (2011)</td>
<td>PTSD case study- no formal quantitative PTSD outcome measure used</td>
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<tr>
<td>Omidi, Mohammadi, Zargar &amp; Akbari (2013)</td>
<td>No pre-post measure of PTSD used</td>
</tr>
<tr>
<td>Owens, Walter, Chard &amp; Davis (2012)</td>
<td>Mindfulness combined with CBT and PE treatment program</td>
</tr>
<tr>
<td>Pigeon, Allen, Possemato, Bergen-Cico &amp; Treatman (2014)</td>
<td>No formal quantitative PTSD outcome measure used</td>
</tr>
<tr>
<td>Price, Wells, Donnovan &amp; Rue (2007)</td>
<td>Qualitative study only</td>
</tr>
<tr>
<td>Reber et al. (2013)</td>
<td>CBT intervention- not mindfulness based</td>
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<tr>
<td>Wahbeh (2014)</td>
<td>No formal quantitative PTSD outcome measure used</td>
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</tbody>
</table>

*Note.* PTSD=posttraumatic stress disorder; CBT= cognitive behavior therapy.
Figure 1. PRISMA Flow Chart.
Table 2.

*Articles Included in the Review*

<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Intervention</th>
<th>Outcome measures</th>
<th>Design and follow up</th>
<th>Attrition and completion rates</th>
<th>Adverse effects</th>
<th>Results and effect sizes (Cohen’s d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bhatnagar et al. (2013)</td>
<td>8 combat veterans, (7 male) mean age 59.5 years (range 42-71 years)</td>
<td>Mindfulness based stress reduction group (MBSR)</td>
<td>CAPS/ heart rate variability</td>
<td>No control group</td>
<td>Not reported</td>
<td>1 patient showed an increase in CAPS score by 2 points between baseline and 1 month follow up (this change was not considered clinically significant)</td>
<td>1 month post intervention PTSD symptoms decreased as measured by the CAPS score.</td>
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<td></td>
<td>All participants had PTSD diagnosis</td>
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<td>Pre-post measures-1mth follow-up</td>
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<tr>
<td>Branstrom, Kvillemo, Brandberg &amp; Moskowitz (2010)</td>
<td>71 patients treated for cancer, (70 women) mean age 51.8 years (range 30-65 years)</td>
<td>Mindfulness based stress reduction group (MBSR)</td>
<td>PSS/ HADS/ IES-R/ PSOM/ FFMQ</td>
<td>RCT-2 treatment arms MBSR/ waitlist control</td>
<td>Pre-post measures-3mth follow up</td>
<td>Study reports that there were no adverse side effects as a result of treatment</td>
<td>At post intervention the MSBR group showed a larger decrease than controls in psychological symptoms-perceived stress (d=0.63), posttraumatic avoidance (d=0.41), and increased positive states of mind (d=0.50). Results were not significant for depression or anxiety.</td>
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<td></td>
<td>Mean score of IES-R for the sample indicated a medium level of PTSD distress</td>
<td>Ongoing psychiatry involvement-32.4% on antidepressants</td>
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<td>Branstrom, Kvillemo &amp; Moskowitz (2012)</td>
<td>37 patients returned for 6mth follow up from Branstrom et al. (2010) study</td>
<td>Mindfulness based stress reduction group (MBSR)</td>
<td>PSS/ HADS/ IES-R/ PSOM/ CSES/ FFMQ</td>
<td>6mth follow up</td>
<td>(see above)</td>
<td>Study reports that there were no adverse side effects as a result of treatment</td>
<td>The MBSR group sustained the increase in mindfulness at 6mth follow up compared to controls. There were no other differences in the groups.</td>
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<tr>
<td>Centeno (2013)</td>
<td>10 survivors of intimate partner violence (10 female). Aged 28-58 years</td>
<td>Mindful meditation training classes, 6weeks</td>
<td>Qualitative Interviews/ PSS/ PCL-10/ FMI</td>
<td>No control group</td>
<td>Not reported</td>
<td>2 patients reported increased anxiety during meditation however did not drop out, there were no increases in quantitative measures of symptoms from pre-post therapy</td>
<td>At post intervention there was a decrease in PTSD symptoms and increase in mindfulness skills</td>
</tr>
<tr>
<td>Cox et al. (2014)</td>
<td>11 survivors of critical illness, (8 female) mean age 54 years (range 27-59 years)</td>
<td>Telephone delivered mindfulness intervention- 6 weekly sessions</td>
<td>HADS/ PTSS/ FFMQ/ ERQ/ CSQ/ APACHE II/ EQ-50/ Brief Cope</td>
<td>No control group</td>
<td>Completion defined as attending all 6 sessions- 64% completion rate</td>
<td>3 participants had worsened or unchanged HADS and PTSS scores, all 3 experienced significant life stressors/ worsening health</td>
<td>At post intervention 63% of the sample showed improved PTSS scores. Pre-post intervention PTSS scores were correlated with mindfulness scores on the FFMQ</td>
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<td>Study</td>
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<td>Goldsmith et al. (2014)</td>
<td>10 participants with mixed trauma exposure (9 female/ 4 Caucasian)</td>
<td>Mindfulness based stress reduction group (MBSR)</td>
<td>PHQ/ BDI/ PCL/ AAQ-II/ CTQ/ LEC/ TAQ</td>
<td>No control group</td>
<td>Pre-post measures- no long term follow up</td>
<td>Increases in symptoms of PTSD (2 participants) and depression (1 participant) were not reliable as defined by the reliable change index</td>
<td>At post intervention there was a reduction in symptoms of PTSD, depression and shame based trauma appraisals. There was an increase in acceptance of emotional experience</td>
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<td>Niles et al. (2012)</td>
<td>33 male combat veterans- mean age 52 years (range 23-66)</td>
<td>Tele-health based on MBSR 2x 45 min in-person sessions/ 6x 20min weekly phone calls</td>
<td>CAPS/ PCL-M/ PSQ</td>
<td>RCT- 2 treatment arms- tele-health MBSR and tele-health psycho-education</td>
<td>76% classed as completing MBCT treatment</td>
<td>Study reports that there were no adverse reactions to treatment</td>
<td>At post intervention the mindfulness group showed a significant decrease in PTSD symptoms (d=0.84) and decrease in CAPS score (d=0.70). At 6 week follow up changes in PTSD in the mindfulness group were not sustained (d=0.16) Between group effect sizes post intervention were PTSD (d=1.95) CAPS (d=1.27)</td>
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<td>Study</td>
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<td>Intervention</td>
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<tr>
<td>Kearney, McDermott, Malte, Martinez &amp; Simpson (2012)</td>
<td>92 veterans (70 male, 76 Caucasian)</td>
<td>Mindfulness based stress reduction group (MBSR) Adjunct to usual psychiatric and psychological care</td>
<td>PCL-C/ PHQ-9/ BADS/ SF8/ AAQ/ FFMQ</td>
<td>No control group Pre-post measures- 6 months follow up</td>
<td>Completion defined as attending 4 or more classes- 74% of participants completed MBSR</td>
<td>The study reported that there were no adverse effects- no participants withdrew due to worsening symptoms</td>
<td>At post intervention- there were significant improvements in PTSD symptoms (d=0.55) Depression (d=0.53) Mindfulness (d=0.69) and Acceptance (d=0.65) PTSD subscales- Re-experiencing (d=0.40) Avoidance (d=0.36) Hyper-arousal (d=0.64) Numbing (d=0.46) At 6mth follow up improvements were sustained PTSD (d=0.64) Depression (d=0.70) Mindfulness (d=0.78) Acceptance (d=0.68)</td>
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<td>Study</td>
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<td>Intervention</td>
<td>Outcome measures</td>
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<tr>
<td>Kearney, McDermott, Malte &amp; Martinez (2013)</td>
<td>47 veterans (37 male/32 Caucasian)</td>
<td>Mindfulness based stress reduction group (MBSR)</td>
<td>PCL-C/ LEC/ PHQ-9/ HRQOL/ FFMQ/ BADS/ SF-8</td>
<td>RCT- 2 treatment arms MBSR and treatment as usual (TAU)</td>
<td>Completion defined as attending 4 or more classes- 84% of MBSR group completed.</td>
<td>1 patient in each treatment arm experienced inpatient psychiatry admission due to increased PTSD symptoms/ no one withdrew from MBSR due to increased symptoms</td>
<td>At post intervention the MBSR and TAU group showed no significant differences in PTSD, depression, or behavior activation. Post intervention the MBSR group showed improvement in mindfulness scores (d=0.65) At 4mth follow up improvement in mindfulness was sustained (d=0.67), MBSR group showed clinically meaningful improvement in PTSD symptoms</td>
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Pre-post measures- 4mth follow up
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<th>Intervention</th>
<th>Outcome measures</th>
<th>Design and follow up</th>
<th>Attrition and completion rates</th>
<th>Adverse effects</th>
<th>Results and effect sizes (Cohen’s d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kim et al. (2013)</td>
<td>29 nurses</td>
<td>Mindfulness based stretching and deep breathing (MBX) group 16x 1hr biweekly sessions over 8 wks</td>
<td>PCL-C/ serum cortisol/ plasma ACTH/ serum DHEAS</td>
<td>RCT- 3 treatment arms- MBX/ control- no treatment/ baseline- healthy sample</td>
<td>Pre-post measures- 8 wk follow up</td>
<td>Completion defined by attending 75 % of the sessions- 28 participants (96%) completed</td>
<td>Study doesn’t report on adverse effects</td>
</tr>
</tbody>
</table>

At post intervention the MBX group showed significant improvement in total PTSD symptoms (d=2.28) re-experiencing (d=2.04) avoidance (d=1.82) and hyper-arousal (d=1.72). Improvements in PTSD were significant compared to controls (d=1.42).

At 8 weeks improvements were sustained.
<table>
<thead>
<tr>
<th>Study</th>
<th>Participants</th>
<th>Intervention</th>
<th>Outcome measures</th>
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<th>Attrition and completion rates</th>
<th>Adverse effects</th>
<th>Results and effect sizes (Cohen’s d)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Kimbrough, Magyari, Langenberg, Chesney &amp; Berman (2010)</td>
<td>27 adult survivors of childhood sexual abuse (24 female/21 Caucasian) Mean age 45 years (range 23-68) 15 met criteria for PTSD</td>
<td>Mindfulness Based Stress Reduction group (MBSR)</td>
<td>BDI/ PCL/ BSI/ MAAS</td>
<td>No control group</td>
<td>Intervention retention rates- 89% at 4 weeks 85% at 8 weeks 78% at 24 weeks</td>
<td>No adverse events at the moderate or higher level reported at any time during the study</td>
<td>At post intervention there were significant improvements in, PTSD (d=1.20), Anxiety (d=1.10) Depression (d=1.75) Mindfulness (d=1.20). PTSD subscales- avoidance/ numbing (d=1.43), hyper-arousal (d=1.29) and re-experiencing (d=0.66) Improvements from baseline were largely sustained at 24 week follow up- PTSD (d=0.79) Anxiety (d=0.90) Depression (d=0.96) Mindfulness (d=1.0)</td>
</tr>
<tr>
<td>Study</td>
<td>Participants</td>
<td>Intervention</td>
<td>Outcome measures</td>
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<tr>
<td>Earley et al., (2014).</td>
<td>19 returned for 2.5 year follow up from Kimbrough et al. (2010) study</td>
<td>Mindfulness based stress reduction (MBSR) group</td>
<td>BDI/ PCL/BSI-anxiety subscale/ MAAS</td>
<td>Longitudinal, 2.5 year follow up</td>
<td>N/A</td>
<td>No adverse effects reported</td>
<td>At 2.5 year follow up improvements in PTSD symptoms, depression/ anxiety and mindfulness skills were mainly sustained PTSD (d=0.78) Anxiety (d=0.9) Depression (d=1.07) Mindfulness (d=1.1)</td>
</tr>
<tr>
<td>King et al. (2013)</td>
<td>37 veterans MBCT group- 20 participants (mean age 60.1 years) TAU group- 17 participants (mean age 58.3 years) All with long term PTSD (ongoing for at least 10 years or more)</td>
<td>Mindfulness Based Cognitive Therapy (MBCT) group 8 weekly sessions</td>
<td>CAPS/ PDS/ PTCI</td>
<td>Controlled trial, not randomized MBCT compared to treatment as usual (TAU) comparison group- psycho-education Pre-post measures, no long term follow up</td>
<td>Completion defined as attending 5 or more sessions 15 out of 20 participants completed the MBCT treatment (25% drop out rate)</td>
<td>2 participants reported increased anxiety during mindfulness exercises involving bodily states. 1 participant reported ‘body scan’ triggered memories of assault</td>
<td>At post intervention the MBCT group showed significant improvement in CAPS total (d=0.56) and PTSD symptoms- intrusive thoughts (d=0.20) avoidance (d=0.77) hyper-arousal (d=0.24). The MBCT group CAPS scores improved significantly more than the TAU group between pre- post intervention (d=0.8). Completer analysis also showed improvement in PTCI- negative self (d=0.43) negative world (d=0.59) and self-blame (d=1.0)</td>
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<tr>
<td>Study</td>
<td>Participants</td>
<td>Intervention</td>
<td>Outcome measures</td>
<td>Design and follow up</td>
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<tr>
<td>Smith (2010)</td>
<td>29 women with histories of physical/psychological interpersonal abuse</td>
<td>Mindfulness Based Stress Reduction (MBSR) group - 8 weekly sessions (ongoing concurrent psychotherapy/psychiatry)</td>
<td>PCL-C/ DAPS/ MAAS/ SCL-90-R/ CR-PTSD/ SOC-29 SCS/ blood pressure &amp; heart rate/ Qualitative interview</td>
<td>No control group</td>
<td>Completion defined by attending 5 or more sessions - 15 out of 29 completed the MBSR course, 49% non-completion rate</td>
<td>Study does not report on adverse effects</td>
<td>At post intervention there were decreases in total PTSD symptom scores (d=1.54), re-experiencing (d=1.28) avoidance (d=0.93) and arousal (d=0.77). There were increases in mindfulness (d=.82), sense of coherence (d-1.46) and self-compassion (d=1.35).</td>
</tr>
</tbody>
</table>

Outcome measures: Clinician Administered Posttraumatic Stress Scale (CAPS)/ Perceived Stress Scale (PSS)/ Hospital Anxiety and Depression Scale (HADS)/ Impact of Events Scale- Revised (IES-R)/ Positive States of Mind (PSOM)/ Coping Self-Efficacy Scale (CSES)/ Posttraumatic Symptoms Scale (PTSS)/ Emotion Regulation Questionnaire (ERQ)/ Life Events Checklist (LEC)/ Dissociative Experiences Scale (DES)/ Basic Symptoms Inventory (BSI)/ Positive and Negative Affect Scale (PANAS)/ Anxiety Sensitivity Index (ASI)/ Freiberg Mindfulness Inventory (FMI)/ Five Facet Mindfulness (FFMQ)/ Toronto Mindfulness Scale (TMS)/ PTSD Symptom Checklist-Civilian (PCL-C)/ Beck Depression Inventory (BDI)/ Acceptance and Action Questionnaire (AAQ-II)/ Acute Physiology and Chronic Health Evaluation (APACHE-II)/ Kentucky Inventory of Mindfulness (KIMS)/ Patient Health Questionnaire (PHQ)/ Short Form-8 (SF8)/ Health Related Quality of Life (HRQOL)/ Behaviour Activation for Depression Scale (BADS)/ Detailed Assessment of Post-Traumatic Stress (DAPS)/ Crime Related PTSD (CR-PTSD)/ Self-compassion Scale (SCS)/ Orientation to Life Questionnaire (SOC-29)/ Symptoms Checklist (SCL-90)/ The Post Traumatic Stress Diagnostic Scale (PDS)/ Posttraumatic Cognitions Inventory (PCTI)/ Mindful Attention Awareness Scale (MAAS)/ Child Trauma Questionnaire (CTQ)/ Trauma Appraisal Questionnaire (TAQ)/ Short Form-8 (SF-8)/ EuroQol-50 (EQ-50)
Each study was reviewed according to the Downs and Black (1998) Quality Criteria Checklist by the first author (KB). A second rater (JS) who is a qualified Consultant Clinical Psychologist was asked to rate three papers, selected to represent different degrees of quality, to measure inter-rater reliability. The studies were fully anonymized so that the second rater was blind to the publication authors and journal to reduce any potential bias. Cohen’s kappa (κ) indicated a substantial level of agreement between the raters- κ= 0.79 (Landis & Koch, 1977). The profile of quality review scores are outlined in Table 3.

**Summary of Study Characteristics**

The 12 studies included in this review featured four RCTs (Branstrom et al., 2010; Kearney et al., 2013; Kim et al., 2013; Niles et al., 2012), one controlled trial that was non-randomized (King et al., 2013), three uncontrolled trials (Kearney et al., 2012; Kimbrough et al., 2010; Smith 2010) and four pilot studies (Bhatnager et al., 2013; Centeno, 2013; Cox et al., 2014; Goldsmith et al., 2014). All the studies in this review used adult samples and employed reliable and valid outcome measures of mindfulness and PTSD.

The main intervention approach used was MBSR; of the nine studies which used this approach, seven used the manualized program of eight group sessions (Bhatnager et al., 2013; Branstrom et al., 2010; Goldsmith et al., 2014; Kearney et al., 2012; Kearney et al., 2013; Kimbrough et al., 2010; Smith, 2010) and two studies adapted MBSR into a tele-health intervention (Cox et al., 2014; Niles et al., 2012). There was only one study which used MBCT (King et al., 2013). The remaining two studies used other variations of mindfulness based interventions (Kim et al., 2013; Centeno, 2013).

It is worth noting the studies included in this review were largely heterogeneous in terms of the samples used. Particularly there was variation in the types of trauma studied- two studies investigated interpersonal trauma (Centeno, 2013; Smith, 2010), one study
childhood sexual abuse (Kimbrough et al., 2010), five studies combat trauma (Bhatnager et al., 2013; Niles et al., 2012; Kearney et al., 2012, Kearney et al., 2013; King et al., 2013), three studies health related trauma (Branstrom et al., 2010; Cox et al., 2014, Kim et al. 2013) and one study used a sample of mixed trauma type (Goldsmith et al., 2013). The studies also varied in terms of PTSD diagnosis, six studies used samples in which 100% of participants were diagnosed with PTSD, or met criteria for PTSD diagnosis (Bhatnager et al., 2013; Centeno 2013; Niles et al., 2012; Kearney et al., 2013; King et al., 2013; Smith, 2010). Five studies used samples in which all participants had been directly exposed to traumatic life events. These studies included childhood sexual abuse (Kimbrough et al., 2010), combat/ war zone (Kearney et al., 2012), cancer or critical illness (Branstrom et al., 2010; Cox et al., 2014) and mixed traumatic life events as identified by the Life Events Checklist (Goldsmith et al., 2014). One study used a healthy population, although 79% of them presented with PTSD symptoms (Kim et al., 2013).
### Table 3. Quality Criteria

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*Randomized Controlled Trials
**Intervention Results**

The methodological quality of the studies included was widely varied. Due to the limited research in the area pilot studies were included in the review although statistically significant findings cannot be drawn from these studies. Therefore the results will be discussed separately for each type of research design.

**Pilot Studies**

The search process identified four studies which were pilot studies with small sample sizes. Each study will be discussed in turn. Bhatnager et al. (2013) studied MBSR delivered in a group format. There was no report of treatment fidelity, or compliance. Out of the eight participants that completed, five showed a reduction in PTSD symptoms as measured by the Clinician Administered PTSD Scale (CAPS) at post intervention and six showed a reduction in CAPS score at one month post intervention. Goldsmith et al. (2014) also investigated MBSR delivered in a group format. Treatment fidelity was not reported, although compliance was measured through mean minutes of mindfulness practice per week, the mean increased over the treatment and indicated good treatment compliance. At post intervention mean scores showed a reduction in symptoms of PTSD, depression, shame based trauma appraisals and increased acceptance of emotional experience.

Cox et al. (2014) investigated the use of MBSR delivered through a tele-health intervention. There was no report of treatment fidelity or compliance. The study reported that six of the eight participants showed a reduction in PTSD symptoms, anxiety, and depression at post intervention. The Client Satisfaction Questionnaire showed that participants were highly satisfied with the intervention. Centeno (2013) investigated a mindfulness meditation training group intervention delivered by a trained, experienced facilitator. The study measured minutes spent on mindfulness practice per week and this indicated good treatment
compliance. The study reported an increase in mindfulness and a decrease in PTSD symptoms post intervention. However the sample was also engaged in ongoing concurrent psychotherapy. All four pilot studies reported positive improvements in PTSD symptoms, although due to the small samples used we cannot determine if this represents statistically significant change.

Non-controlled Trials

Three of the studies identified were non-controlled trials. Smith (2010) investigated MBSR delivered in a group format. The treatment was audio recorded and rated for fidelity, and participants reported an average 3.3 hours practice per week, indicating good compliance. The study reported that post intervention there was a significant reduction in PTSD symptoms, whilst mindfulness, self-compassion and sense of coherence increased, all with large effect sizes. However the sample had ongoing concurrent psychotherapy throughout the intervention. Kimbrough et al. (2010) also investigated MBSR delivered in a group format. The intervention was delivered by a trained interventionist, and participants reported a mean of 44 minutes of mindfulness practice per day indicating good compliance. The study reported significant improvements in anxiety, depression, mindfulness and PTSD symptoms, particularly avoidance, with large effect sizes at post intervention. However this study sample also had ongoing concurrent psychotherapy.

Kearney et al. (2012) also investigated MBSR delivered in a group format. The intervention was delivered by a trained interventionist, although compliance with mindfulness practice was not reported. The study reports significant improvements in PTSD, depression, mindfulness and acceptance, with medium effect sizes. However, again the sample had ongoing concurrent psychiatric and psychological input throughout. All three non-controlled trials indicated positive findings, although all three included samples with
ongoing psychotherapy which may have contaminated results. Furthermore the absence of a control group in these studies means it’s difficult to attribute any change purely to the mindfulness intervention.

**Controlled Trials**

There was one non-randomized controlled trial identified in the search process. King et al. (2013) compared MBCT delivered in a group format to a treatment as usual psycho-education group. Although they used an active comparison group, the psycho-education group did not match the MBCT group in terms of contact hours or homework. The MBCT intervention was delivered by a trained facilitator and audio recordings, supervision and a treatment checklist was used to ensure treatment fidelity. The study reports good compliance with homework exercises. Post intervention the study found significant improvement in PTSD symptoms and a significant reduction in negative cognitions including self-blame with medium effect sizes in the MBCT group but not the TAU group. It is worth noting that improvements in PTSD symptoms in the MBCT group seem to have been largely due to a change in symptoms of avoidance and numbing, rather than the symptom subscales of intrusion and hyper-arousal.

**Randomized Controlled Trials**

There were four RCTs found through the search process. Branstrom et al. (2010) compared group delivered MBSR to a waitlist control group. Treatment fidelity was not reported; although during the intervention 88% of participants were practicing meditation out with the group at least once a week or more, indicating good compliance. At post intervention the study found that the MBSR group showed significant decreases in perceived stress, post-traumatic avoidance and significant increases in positive states of mind, all with medium
effect sizes. There were no significant differences in the groups for depression or anxiety. Kearney et al. (2013) also investigated MBSR delivered in a group format compared to treatment as usual. The interventionists were appropriately trained, although compliance with mindfulness practice was not reported. The study found that there were no significant differences at post intervention between the MBSR and treatment as usual groups in PTSD symptoms; however the MBSR group did show significant improvement in Health Related Quality of Life (HR-QOL).

Niles et al. (2012) compared a MBSR tele-health intervention to a psycho-education tele-health intervention. The use of an active control group reduced the chance of effects being placebo alone, although the sample had ongoing concurrent psychotherapy. The interventionist used a checklist to ensure treatment fidelity, and compliance with intervention homework was good, with 89% of the sample completing at least 75% of the homework. At post intervention there was a significant decrease in PTSD symptoms with large effect sizes in the MBSR group compared to the psycho-education group. Kim et al. (2013) developed a group program of mindful breathing and stretching over 16 one hour bi-weekly sessions and compared this intervention to waitlist controls and a healthy sample. They found that post intervention PTSD symptoms significantly improved in the mindfulness group compared to controls with large effect sizes in all three symptom subscales of re-experiencing, hyper-arousal and avoidance. Out of the four RCTs, three reported improvements in PTSD symptoms; the one which found no significant change was the only study to include a chronic PTSD sample (Kearney et al., 2013).

**Sustainability of Results**

There were seven studies which included a longitudinal long term follow up, two of which indicated that effects were not sustained at follow up. Niles et al. (2012) found significant
improvements in PTSD symptoms post intervention, although found these changes were not sustained at the six week follow up; it is worth noting this study used a tele-health intervention, which was a relatively brief intervention compared to the others. Similarly however Branstrom et al. (2012) used a more intensive manualized eight week group model of MBSR and also found that significant changes post-intervention in symptoms of PTSD were not sustained at six month follow up. These results contrast with the other five studies which had a longitudinal follow up. The Kearney et al. (2013) study failed to find improvements in PTSD at post intervention compared to controls; however at four month follow up the MBSR group showed more clinically meaningful change in PTSD symptoms than the control group. A further four studies found that improvements in PTSD symptoms were largely sustained at two months (Kim et al., 2013) six months (Kearney et al., 2013) seven months (Kimbrough et al., 2010) and 30 months follow up (Earley et al., 2014).

Attrition Rates

The majority of studies reported completion rates for the intervention; only three studies did not report completion rates (Bhatnager et al., 2013; Centeno, 2013; Goldsmith et al., 2014). There was variation in how “treatment completers” were defined. Where completion was defined by attendance at four or more sessions then the rate of non-completers varied from 11% to 26% (Branstrom et al., 2010; Kearney et al., 2012; Kearney et al., 2013; Kimbrough et al., 2010). Where completion was defined by attendance at five or more sessions, the rate of non-completers ranged from 25% to 49% (King et al., 2013; Smith 2010). Only one study defined completion as attendance of 100% of sessions, they reported a non-completion rate of 36% (Cox et al., 2014). Kim et al. (2013) defined completion as attending 75% of the 16 sessions; they reported a 4% non-completion rate. Niles et al. (2013) reported a 24% non-completion rate, but did not define what classed as “completion.”
Adverse Effects

There were four studies that explicitly stated there were no adverse effects as a result of the treatment (Branstrom et al., 2010; Niles et al., 2012; Kearney et al., 2012; Kimbrough et al., 2010), two studies did not report on adverse effects (Kim et al., 2013; Smith, 2010). The remaining six studies that reported on adverse effects all reported that increases in symptoms were not clinically significant. Bhatnager et al. (2013) reported that one participant showed a two point increase on the CAPS, a rise of >10 points being considered clinically meaningful. Goldsmith et al. (2014) found that two participants had a rise in PTSD symptoms and one participant had a rise in depression, however these changes were not defined as reliable by the reliable change index.

From qualitative feedback from the interventions, Centeno (2013) found that two patients reported anxiety during meditation and King et al. (2013) found that two patients reported anxiety during exercises regarding bodily states, with one reporting this exercise triggered memories of assault. In both these studies the participants continued with the intervention. Cox et al. (2014) did not use a sample with diagnosed PTSD, rather they used a sample of critical illness survivors, and reported three participants had unchanged or worsened PTSS and HADS scores. Finally Kearney et al. (2013) found that one patient from the MBSR group and one from the treatment as usual group experienced an inpatient admission during the study; however they report that this did not seem to be a direct result of MBSR.

Discussion

This review suggests that further research investigating mindfulness based approaches for treating symptoms of PTSD in adults may be useful. The majority of studies reported improvements in PTSD symptoms at post intervention, and improvements were largely sustained in studies which featured a long term follow up ranging from 2 to 30 months. From
the studies that reported individual subscales of PTSD symptoms, there was agreement between four studies that avoidance symptoms showed the most improvement, with large effect sizes (Branstrom et al., 2010; Kimbrough et al., 2010, King et al., 2013; Smith, 2010). The majority of studies reported significant improvements in mindfulness and acceptance. The studies reviewed indicate that there are minimal adverse effects of mindfulness interventions. It is evident from this review that the results are encouraging; therefore further research would be useful to advance our understanding of the effectiveness of mindfulness based interventions for PTSD symptoms.

However it is important that the results of this review are interpreted with caution, as the majority of studies included in this review were of low to moderate methodological rigor. Due to a lack of research in the field this review included a small number of studies and pilot studies with small samples. Only four studies included a control group with a randomized design, which is considered the gold standard for intervention research. Out of the five studies that used a control group, only two studies used an active control (Niles et al., 2012; King et al., 2013). Half of the studies used samples that had ongoing psychotherapy input which may have contaminated the results of the mindfulness intervention (Centeno, 2013; Niles et al., 2012; Kearney et al., 2012; Kearney et al. 2013; Kimbrough, 2010; Smith 2010). Due to these methodological limitations it is not possible to draw a conclusive statement about the effectiveness of mindfulness interventions for treating PTSD symptoms at this time.

All studies in this review were published within the last four years, suggesting this is an area of rapidly increasing research attention. It is however important to note that these results may reflect publication bias in which studies with positive results are more likely to published and disseminated than those with negative outcomes (Easterbrook, Gopalan, Berlin & Matthews, 1991). An attempt was made to reduce this bias by contacting authors for unpublished studies, although this attempt did not uncover any unpublished work in the field,
and does not account for work by authors who were not contacted. Future studies in this field would benefit from larger samples, adequate power and RCT designs with an appropriately matched control group. To effectively evaluate mindfulness interventions, future studies should be conducted without ongoing psychotherapy to avoid contamination of the intervention results. To increase internal validity future studies would also benefit from using adequate blinding procedures. When considering the mindfulness interventions provided in future trials, it may be useful to modify mindfulness interventions for PTSD, particularly in terms of being sensitive to body focused interventions for certain trauma types (King et al., 2013). Future trials should use adequately trained therapists experienced in monitoring any indications of increased anxiety.

**Strengths**

This is the first review of its kind which specifically focuses on the utility of mindfulness based approaches on symptoms of PTSD. The findings of this review are therefore an important first step in interpreting the existing research base, and informing future studies. The majority of studies included in this review used interventions based on MBSR, so they shared a degree of commonality. The outcome measures used in the studies were all robust and well validated, reliable measures allowing for more meaningful comparison. The inter-rater validity for the quality ratings within the review indicated a substantial level of agreement between the raters. From this preliminary investigation it seems that adverse effects of mindfulness are limited and effectiveness of treating PTSD is encouraging. Clinically there are already a significant number of professionals trained in approaches such as MBSR, and mindfulness approaches are already relatively well integrated into health care systems. Therefore application of mindfulness with this client group may be relatively practical to implement in terms of existing resources. Although approaches such as MBSR
are time intensive with 2.5 hours over eight sessions, the group approach to delivery means it may still be less time intensive than providing individual therapy.

Limitations

There are several limitations to this review, predominantly in the heterogeneous nature of the samples included, which meant that a meta-synthesis of results was not feasible and instead a narrative summary has been utilized. Mainly the studies varied in terms of trauma populations and severity of PTSD symptoms/diagnosis. Research has shown that exposure to different types of traumatic event whether sexual abuse, transport accident, illness, physical abuse can result in varying post traumatic reactions, particularly in the experience of negative emotion (Amstadter & Vernon, 2008). Other factors such as time since the trauma and severity of trauma exposure, one off events vs. prolonged repeated trauma can also vastly affect the experience of PTSD symptoms (Cloitre et al., 2009). Despite this the results of this review do not suggest that there were any significant differences in the effectiveness of mindfulness interventions between groups in terms of trauma type.

As this is an initial review of the research, the review includes a small number of studies. Several studies included in this review were pilot studies with small samples; therefore it is not possible to draw any statistical significance from their findings. The remaining studies had methodological limitations which reduces the strength of evidence that can be drawn from these studies. There was significant heterogeneity in the methodological quality of the studies included in this review, and therefore a collective synthesis of this evidence was not possible. Another limitation of this review is within the quality ratings of the studies included. It is important to note that although there was substantial inter-rater agreement about the quality of the studies, this was based on a relatively small sample as only three papers out of the full 12 were subject to inter-rater review.
There has been a wealth of research which has focused on qualitative analysis of mindfulness based interventions with PTSD populations (e.g. Dutton et al., 2011); it was out-with the scope of this current review to evaluate these findings. However qualitative reports add a unique and valuable contribution to determining the effectiveness of these interventions. Two studies included in this review used a mixed methods design in which quantitative findings were substantiated with qualitative analysis (Centeno, 2013; Smith, 2010). It would be useful for future reviews to evaluate qualitative studies in this area. The majority of research studies included in this review were conducted within North America or Europe which suggests a level of cultural bias. These results therefore may not translate into non-western and non-English speaking populations.

Conclusions

This review aimed to synthesize and evaluate the existing research on the use of mindfulness based interventions for symptoms of PTSD in adults. Preliminary results suggest mindfulness based interventions may be useful to decrease PTSD symptoms particularly in terms of avoidance. The review shows that research in this area is limited and as such there were a small number of studies included in this review, many of which were of limited methodological quality. The studies included within the review are also relatively heterogeneous in terms of samples with exposure to different trauma types and with varying degrees of PTSD severity. The heterogeneity and mixed methodological quality of studies included means that results should be interpreted with caution. This preliminary review suggests that it may be beneficial to research mindfulness based interventions further with PSTD symptoms. This review highlights important considerations for future research methodology in terms of the need to use control groups with adequately randomized samples and appropriate use of blinding to minimize bias. There is also the need for future studies to
include larger samples without ongoing psychotherapy to ensure adequate power and reliability of results.
References


PTSD and a history of intimate partner violence. *Cognitive and Behavioural Practice*, 20(1), 23–32.


The Impact of Difficult Life Events on our Experience of Self-compassion, Post-traumatic Stress and Growth

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Written in accordance with the author guidelines for the Journal of Traumatic Stress (see Appendix 2)

Word Count- 5, 753 (excludes references and tables)
Abstract

Post-traumatic stress and exposure to early traumatic events are often characterized by negative self-cognitions and experiences of shame, guilt or blame. These symptoms are theoretically linked to the concept of self-compassion which is an important factor in affect regulation, and is predictive of mental wellbeing and psychological distress. This study explored the relationship between the experience of childhood trauma and self-compassion in an adult clinical sample. The study also investigates the relationship between self-compassion and the experience of post-traumatic stress and post-traumatic growth in individuals who have experienced a traumatic life event. Greater experience of childhood emotional abuse, neglect, punishment and sexual abuse was significantly correlated with lower self-compassion in adulthood. Self-compassion was predictive of total post-traumatic stress symptoms, and post-traumatic avoidance and intrusion when exposure to traumatic life events and childhood trauma were controlled. The experience of post-traumatic growth showed no significant relationship with self-compassion. The results support similar findings from research in the area and suggest that childhood abuse may restrict the development of self-compassion and decreased self-compassion is related to increased PTSD avoidance and intrusion symptoms.
Introduction

*Post-traumatic Stress Disorder*

The experience of traumatic lifetime events has been clearly linked to mental health, psychological distress and psychiatric diagnosis (Turner & Lloyd, 1995). PTSD is characterized by symptoms of hyper-arousal, avoidance, re-experiencing, and negative cognitions and mood (American Psychiatric Association, 2013). Trauma symptoms can be variable in terms of duration and severity. Early exposure to multiple traumas, such as childhood abuse, is predictive of the severity of PTSD symptoms in adulthood and can result in a complex form of PTSD whereby emotion regulation difficulties, interpersonal problems and altered self-concept can add to the complexity of the presentation (Cloitre et al., 2009). Individuals who experience childhood abuse also report greater exposure to other lifetime traumatic events (Banyard, Williams & Siegel, 2001). PTSD symptoms commonly occur within the context of other psychological difficulties; the rate of co-morbidity with anxiety, depression, substance misuse, personality disorder, and schizophrenia is high (Keane & Kaloupek, 2006). Research suggests that females are twice as likely as males to develop PTSD (Breslau, Davis, Andreski, Peterson & Schultz, 1997). In a representative sample of adults referred to primary care clinical psychology services, 89% reported exposure to at least one traumatic life event and 51% met the screening criteria for PTSD despite trauma not always being the initial reason for referral (Noel, Gillanders & Power, 2012).

An estimated 25-30% of individuals who are exposed to a traumatic life event will go on to develop PTSD (National Institution of Clinical Excellence, 2005). Mediating and moderating variables may be important in explaining why some individuals exposed to traumatic events will develop PTSD whilst others do not. Furthermore, understanding the mechanisms related to the development and maintenance of PTSD is important for planning effective interventions. The cognitive model of PTSD suggests that negative self-appraisals
during and post trauma may contribute to the development and maintenance of PTSD by providing a sense of current threat to the self (Ehlers & Clark, 2000). This has been supported by empirical research in which the severity of PTSD symptoms was significantly predicted by cognitive factors including negative beliefs about the self, judgment of trauma symptoms, perceived negative reactions from others and maladaptive coping strategies such as avoidance and safety seeking (Dunmore, Clark & Elhers, 2001). Self-blame is a common response to childhood trauma, and can persist into adulthood; self-blame is predictive of greater psychological distress, maladaptive coping and PTSD symptoms (Filipas & Ullman, 2006). Similarly, elevated self-criticism is significantly associated with greater PTSD symptoms when controlling for trauma type and severity in adults exposed to mixed traumatic life events (Cox, MacPherson, Enns & McWilliams, 2004).

The cognitive model suggests that negative emotions of shame and guilt have a perpetuating role in the maintenance of PTSD symptoms (Ehlers & Clark, 2000). Empirical research has shown that individuals experiencing high levels of guilt and shame had higher PTSD symptoms at the onset of therapy, and changes in shame and guilt predicted changes in PTSD symptoms over the course of treatment (Oktedaaalen, Hoffart & Langkass, 2014). Shame in particular has been shown to contribute to the development and maintenance of PTSD over and above the role of other emotions such as anger or guilt (Andrews, Brewin, Rose & Kirk, 2000; Leskela et al., 2002). Andrews, Brewin, Rose and Kirk (2000) found that shame mediated the relationship between childhood abuse and later PTSD symptoms. Individuals with PTSD who have high levels of shame are also more likely to be self-critical and less prone to self-reassurance (Harman & Lee, 2010).

Gilbert and Proctor (2006) suggest that self-criticism and shame can develop as a defensive coping style in response to situations where an individual’s personal integrity is threatened, such as during traumatic life events. Individuals with high levels of shame and
self-criticism have lower levels of self-compassion which may make them more vulnerable to psychological distress (Gilbert, 2009). Recent research with individuals who experienced high levels of shame and self-critical thinking found Compassion Focused Therapy (CFT) to be an effective intervention, with participants showing a significant increase in abilities to self-soothe and provide self-reassurance (Gilbert & Proctor, 2006). CFT works within a traditional cognitive framework where dysfunctional and self-attacking thoughts about traumatic events are reframed in a compassionate way so that self-soothing feelings predominate, suggesting this maybe an effective intervention for PTSD (Lee, 2012).

**Self-Compassion**

The concept of self-compassion has been an increasing focus of research and literature on mental health in recent years; the growth in this area has been supported by ‘third wave’ therapies which have evolved to encourage individuals to have a more accepting and non-judgmental relationship with their difficulties. Self-compassion has been defined as consisting of three components (a) self–kindness, which encourages abilities to self-soothe and reduce self-critical thinking (b) mindfulness, which refers to being in the moment rather than ruminating on negative thoughts and (c) common humanity, which acknowledges the experience of failure as part of the shared human experience and provides a balanced perspective of personal limitations (Neff, 2003). Gilbert (2009) describes self-compassion as an affect regulation system which enforces feelings of safety, reassurance, self-soothing and wellbeing; he theorizes that this system develops along with our early attachment experiences of receiving care. Neff (2009) showed that factors such as secure attachment, maternal support and harmonious family functioning were all predictive of higher self-compassion amongst an adolescent sample.
A recent systematic review of 20 studies, found a large effect size for the relationship between self-compassion and psychopathology, the authors concluding that self-compassion is an important explanatory variable in the severity of symptoms of mental health (MacBeth & Gumley, 2012). It is however worth noting that the majority of studies included in this review used student samples rather than clinical populations and looked at mild to moderate symptoms of anxiety, depression and stress. Those with higher self-compassion have been shown to demonstrate more emotion focused coping and less avoidance-orientated coping strategies, suggesting this may be one potential pathway through which self-compassion acts as a defense against psychopathology (Neff, Hsieth & Dejitterat, 2005). More research examining the effect of self-compassion on complex, severe and enduring mental health difficulties in adult clinical populations is required.

**Trauma and Self-Compassion**

Relatively few studies have looked at the concept of self-compassion in the context of trauma symptoms and exposure to traumatic life events. Thomson and Waltz (2008) explored the effect of self-compassion on post-traumatic stress symptoms (PSS); they found a significant relationship between self-compassion and avoidance, although no relationship between self-compassion and hyper-arousal or re-experiencing. Leary et al. (2007) studied the effect of self-compassion on an individual’s ability to cope with an unpleasant life event. The study showed that greater self-compassion led to thinking styles which may be helpful in processing a traumatic event, such as reduced self-judgment and less time spent ruminating over the traumatic event. However this study examined the effect of self-compassion on unpleasant rather than traumatic life events (e.g. facing embarrassment at high school). Both these studies sampled psychology undergraduate students who are not representative of an adult clinical population where the rate of trauma is significantly higher (Noel et al., 2014).
Studies which have explored self-compassion in a clinical sample have thus far focused on adolescent populations. Vettese et al. (2011) examined self-compassion following childhood maltreatment in an adolescent sample with substance misuse difficulties; self-compassion predicted emotion dysregulation difficulties above and beyond severity of abuse, maltreatment history, substance misuse and psychological distress. Tanaka, Wekerle, Schmuck and Paglia-Boak (2011) found that adolescents who had experienced greater emotional abuse, emotional neglect and physical abuse had lower self-compassion. A longitudinal study followed an adolescent sample six months after a traumatic event and found that greater self-compassion was predictive of less post-traumatic stress, panic and suicidality (Zeller, Yuval, Nitzan-Assayag & Berstein, 2014). Adolescence is a transitional time of developmental change, when self-compassion is thought to be lower and it is therefore unclear whether the relationship between traumatic events, self-compassion and post-traumatic stress would replicate in an adult sample (Neff & Vonk, 2008). From these preliminary studies it is apparent that further research is needed to explore the relationship between traumatic events, PTSD and self-compassion in an adult clinical population.

Post-traumatic Growth

The focus of literature has been on the negative effects of traumatic life experiences, however post-traumatic growth has recently become a focus of research and interest in the topic has grown with the literature on positive psychology. Post-traumatic growth (PTG) refers to any positive personal change which may occur following highly stressful life events (Tedeschi & Calhoun, 2004). PTG stems from the individual’s struggle in the aftermath of a traumatic event and develops as an individual learns to cope, adapts to change and accepts their new reality. Women tend to report more PTG than men (Tedeschi & Chalhoun, 1996). Three categories of positive change have been identified: a changed philosophy of life including
living life to the fullest, a change in interpersonal relationships, and changes in self-perception such as resilience, emotional growth and strength (Tedeschi & Chalhoun, 1996). Shepard and Cardon (2009) propose that self-compassion may help an individual to regulate negative emotion following a negative experience, therefore facilitating the process of learning from the experience. To date no empirical research studies have looked at whether self-compassion may be related to PTG.

Research Aims and Objectives

This study aimed to explore the relationship between exposure to early childhood trauma and one’s ability to be self-compassionate in an adult clinical population. The study also aimed to explore the effect of an individual’s ability to be self-compassionate on post-traumatic stress symptoms and post-traumatic growth in an adult clinical sample exposed to a traumatic life event. From previous research it was hypothesized that exposure to early childhood trauma would correlate with lower self-compassion in adulthood. It was also hypothesized that lower self-compassion would be related to greater post-traumatic stress symptoms. Although self-compassion may theoretically be related to post-traumatic growth (Shepard & Cardon, 2009), this is the first known empirical study to research these relationships and it is therefore explorative in nature.

Methodology

Design

This study utilized a non-experimental, cross-sectional, research design. Relevant ethical approval was obtained (see Appendix 4). Data were gathered using a postal survey with quantitative self-report questionnaires. Participants were recruited from the waiting lists of NHS Forth Valley Adult Primary Care Psychology Services. Suitable participants were
identified by the primary researcher according to a list of inclusion/exclusion criteria (see Appendix 5). Potential participants were defined as eligible for inclusion if they were aged between 16 and 67 years, spoke fluent English, had opted in for an appointment with Clinical Psychology services and were near the top of the waiting list (due to be offered an appointment with the service in <2 months). Potential participants were excluded if they were current inpatients, if they were suspected to lack capacity to provide informed consent, if they were referred for neurological assessment or if they had a learning disability.

Potential participants were contacted via post, and invited to participate. The postal study pack contained an invitation letter, participant information sheet (see Appendix 6), demographic/life styles questionnaire, five self-report questionnaires, and a stamped addressed envelope to return the questionnaires. The five self-report questionnaires included in the pack were the Self-Compassion Scale, Impact of Events Scale-Revised, Life Experiences Checklist, Post-Traumatic Growth Inventory, and the Child Abuse and Trauma Scale (see Appendix 7 for scale reliability analysis). Participation did not affect the services that individuals received from primary care adult psychology services and this was made explicit in the information sheet. The questionnaires were returned anonymously by post and were collated by the primary researcher.

**Demographic and Lifestyles Questionnaire**

A questionnaire was developed to record each participant’s age, gender, ethnicity, marital and employment status, educational attainment and primary reason for referral.

**Life Events Checklist (LEC) (Gray, Litz, Hsu & Lombardo, 2004)**

The Life Events Checklist is a self-report measure of an individual’s exposure to potentially traumatic life events; it has adequate psychometric properties (Gray et al., 2004). There are
16 items which ask about potentially traumatic events commonly associated with PTSD, and one item which enquires about any other traumatic experience not previously listed. The items are defined in line with the Diagnostic and Statistical Manual (APA, 1994) definition of a potentially traumatic event, ‘if one experiences, witnesses or confronts a situation that involves actual or threatened death or serious injury to one- self or others, and if it elicits a response of intense fear, helplessness or horror’ (Gray et al., 2004 p.330). All items are rated on a five point Likert scale: 1-happened to me, 2- witnessed it, 3- learned about it, 4-not sure, and 5-does not apply. The number of items marked ‘happened to me’ on the LEC significantly correlates with severity of PTSD symptoms (Gray et al., 2004).

*Impact of Events Scale Revised (IES-R) (Weiss & Marmar, 1999)*

Weiss & Marmar (1997) developed the Impact of Event Scale Revised (IES-R), a measure of PTSD symptoms including subscales for intrusion, avoidance and hyper-arousal. The IES-R includes 22 items, which are rated on a scale of 0-4 from ‘not at all’ to ‘extremely’ according to the degree of distress experienced in the past seven days. The IES-R has been shown to have impressive test-retest reliability and internal consistency (Weiss, 2004). The IES-R is widely recognized and broadly applied in clinical and research domains (Elhai, Gray, Kashdan & Franklin, 2005). Scale reliability analysis for the current study indicated the IES-R had acceptable internal consistency, for the total score (α=.94) and the subscales avoidance (α=.90), hyper-arousal (α=.81), and intrusion (α=.92).

*Child Abuse and Trauma Scale (CATS) (Saunders & Becker-Laussen, 1995)*

The Child Abuse and Trauma Scale (CATS) is a measure of an individual’s exposure to early traumatic events, childhood abuse and maltreatment. The scale contains 38 items related to three subscales of punishment, neglect/ negative home environment and sexual abuse
Each item is rated on a Likert scale from 0-4, where a higher overall score represents greater exposure to child abuse and trauma. The scale has demonstrated strong test-retest reliability and internal consistency (Saunders & Becker-Laussen, 1995). An additional subscale of emotional abuse was later developed from items not included in previous subscales and it has been identified to have acceptable concurrent validity and internal consistency (Kent & Waller, 1998). In the current study the CATS demonstrated acceptable internal consistency for the total score ($\alpha=.94$), and all subscales, neglect ($\alpha=.95$), punishment ($\alpha=.81$), sexual abuse ($\alpha=.90$) and emotional abuse ($\alpha=.94$).

**Self-Compassion Scale (SCS) (Neff, 2003)**

The Self-Compassion Scale (SCS) (Neff, 2003) has 26 items measuring six components of self-compassion- self kindness, self-judgment, common humanity, isolation, mindfulness and over identification. The scale consists of positive and negative items all of which are rated on a Likert scale from 1-5, where a high overall score is indicative of high self-compassion. The SCS demonstrates good construct, content and convergent validity and good test-retest reliability (Neff, 2003). Although the scale is a self-report measure it does not significantly correlate with social desirability measures indicating that participants do not respond with a bias towards presenting in a socially desirable way (Neff, 2003). The total score for this scale demonstrated acceptable internal consistency in this current study ($\alpha=.93$).

**Post-traumatic Growth Inventory (PTGI) (Tedeschi & Calhoun, 1996)**

The Post-traumatic Growth Inventory (PTGI) was developed to measure the positive effects of a wide variety of traumatic events, making it widely applicable for use with a variety of individuals with varied experiences (Tedeschi & Calhoun, 1996). The PTGI is a self-report measure with 21 items which are rated on a Likert scale of 0-5 from ‘I did not experience this
change as a result of my crisis’ to ‘I experienced this to a very great degree as a result of my crisis’. The scale measures items related to new possibilities, spiritual change, appreciation of life, personal strength and relating to others. Examination of the scales properties showed responses were not related to social desirability, time since the event or age of participant and the scale has good internal consistency and adequate test-retest reliability (Tedeschi & Calhoun 1996). The total score for this scale also demonstrated acceptable internal consistency in the current study (α=.95).

**Participants**

A total of 350 study packs were sent out, which yielded a return of 80 study packs, a response rate of 23%. One study pack was returned damaged in the post and therefore due to a significant amount of missing data it was not included in the analysis. Therefore data from 79 participants were included in the analysis, 53 females and 26 males. The mean age of the full sample was 43 years (SD=13.00) and ranged from 18-67 (for full demographic information see Table 1.). From the full sample of 79 participants, 70 (89%) endorsed having experienced at least one traumatic life event as measured by the LEC. The mean number of life events checked as ‘happened to me’ amongst this sample was 3.46 (SD=2.03) with a range of 1-9. The most commonly endorsed traumatic experiences were transport accident (44.9%), physical assault (45.6%), uncomfortable sexual experience (40.6%), sudden unexpected death of someone close (48.6%), sexual assault (23.2%), and life threatening illness (20.3%), Amongst the full sample 56 (71%) met screening criteria for PTSD as indicated by a score of >33 on the IES-R, the mean score on the IES-R was 46.44 (SD 21.31) (see Table 2).
Table 1.
*Demographic Information for Full and Trauma Exposed Sample*

<table>
<thead>
<tr>
<th>Demographic Information</th>
<th>Full Sample N=79</th>
<th>Sample with exposure to &gt;1 traumatic life event N=70</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean (SD)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Range</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>26 (33)</td>
<td>22 (31)</td>
</tr>
<tr>
<td>Female</td>
<td>53 (67)</td>
<td>48 (69)</td>
</tr>
<tr>
<td>Ethnicity N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>White</td>
<td>79 (100)</td>
<td>70 (100)</td>
</tr>
<tr>
<td>Marital N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Married</td>
<td>32 (41)</td>
<td>30 (43)</td>
</tr>
<tr>
<td>Single</td>
<td>31 (39)</td>
<td>28 (40)</td>
</tr>
<tr>
<td>Divorced</td>
<td>10 (13)</td>
<td>8 (11)</td>
</tr>
<tr>
<td>Cohabiting</td>
<td>6 (8)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>Education N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>None</td>
<td>17 (22)</td>
<td>14 (20)</td>
</tr>
<tr>
<td>Standard-grade/ GCSE</td>
<td>15 (19)</td>
<td>12 (17)</td>
</tr>
<tr>
<td>Higher</td>
<td>5 (6)</td>
<td>5 (7)</td>
</tr>
<tr>
<td>SVQ/NVQ</td>
<td>6 (8)</td>
<td>6 (9)</td>
</tr>
<tr>
<td>Diploma</td>
<td>4 (5)</td>
<td>3 (4)</td>
</tr>
<tr>
<td>Degree</td>
<td>17 (22)</td>
<td>17 (24)</td>
</tr>
<tr>
<td>Post graduate</td>
<td>8 (10)</td>
<td>7 (10)</td>
</tr>
<tr>
<td>Doctorate</td>
<td>4 (5)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>Employment N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Self</td>
<td>5 (6)</td>
<td>5 (7)</td>
</tr>
<tr>
<td>Full time</td>
<td>30 (38)</td>
<td>28 (40)</td>
</tr>
<tr>
<td>Part time</td>
<td>9 (11)</td>
<td>8 (11)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>21 (27)</td>
<td>19 (27)</td>
</tr>
<tr>
<td>Student</td>
<td>3 (4)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Voluntary</td>
<td>2 (3)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>retired</td>
<td>8 (10)</td>
<td>5 (7)</td>
</tr>
<tr>
<td>Referral Reason N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Depression</td>
<td>30 (38)</td>
<td>28 (40)</td>
</tr>
<tr>
<td>Anxiety</td>
<td>21 (27)</td>
<td>17 (24)</td>
</tr>
<tr>
<td>Panic</td>
<td>9 (11)</td>
<td>7 (10)</td>
</tr>
<tr>
<td>Self esteem</td>
<td>3 (4)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Anger</td>
<td>4 (5)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>Trauma</td>
<td>6 (7)</td>
<td>6 (9)</td>
</tr>
<tr>
<td>Eating</td>
<td>4 (5)</td>
<td>5 (6)</td>
</tr>
<tr>
<td>Self-harm</td>
<td>1 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>OCD</td>
<td>1 (1)</td>
<td>1 (1)</td>
</tr>
<tr>
<td>Previous Input N (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>30 (38)</td>
<td>27 (39)</td>
</tr>
<tr>
<td>No</td>
<td>42 (53)</td>
<td>36 (51)</td>
</tr>
<tr>
<td>Prefer not to say</td>
<td>1 (1)</td>
<td>1 (1)</td>
</tr>
</tbody>
</table>
Data Screening and Analysis

Analysis of the data was carried out using SPSS 19 predictive analytics software. A missing values analysis was carried out; the total amount of missing data was 1.8% which is a relatively low amount, i.e. <5% (Chavance, 2004). The Little’s Missing Completely at Random Test was significant suggesting the data were not missing completely at random (Chi-Square= 91057.852, df= 2758, Sig= .001). Items on the CATS subscale for sexual abuse had the highest percentage of missing values, cross-tabulation showed that missing data for this subscale were mainly from women (9.6%) and those referred for trauma (16%). Whilst there is no test for data missing not at random (MNAR) there is reason to assume that the data was missing due to the response and is therefore MNAR. Imputation methods were considered, as the assumption of missing at random was not met and as there was a relatively low percentage of missing data, individual mean imputation was carried out which reduced the overall amount of missing data to 1.2% (Shrive, Stuart, Quan & Ghali, 2006).

The full data set was explored for outliers using visual inspection of box plots, this identified one excessive outlier which was dealt with through a process of winsorising (Field, 2000). The distribution of the data was explored through the values for skewness and kurtosis, all variables were within acceptable limits as defined by a z score <3.29 for a medium sample size (Field, 2000; Kim, 2013). Normality was also subjectively assessed through visual inspection of histograms, which revealed several variables did not follow a normal distribution curve. Stratification of the data did not rectify the distribution.

To test the assumptions of regression analysis, the data were screened for heteroscedasticity by subjectively inspecting plots of the standardized residuals and standardized predicted values for each variable. Observation of these plots did not indicate any patterns within the data, suggesting that the assumption of homoscedasticity had been met. The data were screened for linearity through visual inspection of scatterplots, there was some evidence that
the relationships were monotonic opposed to linear for the variables SCS total, CATS total and CATS sexual abuse. A log transformation of these variables corrected the linearity for SCS total and CATS total but not for CATS sexual abuse.

Analysis was carried out using correlation and hierarchical regression. As assumptions of normality were not met, non-parametric, two-tailed Kendall’s Tau correlations were utilized using original untransformed variables. Bootstrapped hierarchical regression techniques were also employed using 1000 bootstrapped samples and 95% bias corrected confidence intervals (Field, 2000). Due to the multiple comparisons conducted, the Benjamini-Hochberg method was used to control for the false discovery rate (Benjamini & Hochberg, 1995).

**Power**

A large effect size has been found between self-compassion and psychopathology (Macbeth & Gumely, 2012), and the one known study that looked at self-compassion and trauma symptoms found a medium effect size (Thomson & Waltz, 2008). Based on this previous research it was estimated that a medium effect size maybe achieved in this study. Priori power calculations were conducted using G*Power 3.1 (Faul, Erdfelder, Buchner, & Lang, 2009). For two-tailed correlation analysis, to obtain a medium effect size (r=0.3) (Cohen, 1988), alpha of 0.05 and a statistical power of 0.80 a sample size of 82 participants would be required. For further analysis utilizing regression techniques, a multiple regression including up to five predictor variables with a medium effect size, alpha of 0.05 and a statistical power of 0.80 would require 92 participants.

**Results**

Initial analysis was carried out to investigate differences between groups within the full sample on all the main variables. Independent samples t-tests showed that females reported
significantly higher levels of avoidance than males (t(76)= 2.71, p=.008), there were no other significant differences for any of the other main variables between males and females or between those who had previous psychological input and those who had not (p<.01) (see Appendix 8). Bivariate correlation analysis showed there were also no significant correlations for any of the main variables IES, PTGI, SCS, or CATS with age (p<.01) (see Appendix 9). Independent sample t-tests indicated that those who met the clinical cut off for PTSD on the IES-R had significantly lower self-compassion (t(31.90)= 3.65, p=.001) and greater exposure to childhood trauma (t(54.77)=4.28, p=.001) than those who did not meet clinical cut off for PTSD on the IES-R (see Appendix 10).

Table 2.
*Mean Scores and Standard Deviation for All Variables Included in Analysis*

<table>
<thead>
<tr>
<th>Scale</th>
<th>Full sample (N=79)</th>
<th>Trauma Exposed Sample (N=70)</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCS</td>
<td>57.19</td>
<td>56.69</td>
</tr>
<tr>
<td>IES-R</td>
<td>46.44</td>
<td>48.20</td>
</tr>
<tr>
<td>IES Avoidance</td>
<td>15.76</td>
<td>16.62</td>
</tr>
<tr>
<td>IES Hyper-arousal</td>
<td>17.31</td>
<td>17.96</td>
</tr>
<tr>
<td>IES Intrusion</td>
<td>13.37</td>
<td>13.62</td>
</tr>
<tr>
<td>PTGI</td>
<td>33.89</td>
<td>34.12</td>
</tr>
<tr>
<td>CATS total</td>
<td>57.40</td>
<td>57.75</td>
</tr>
<tr>
<td>CATS punish</td>
<td>11.08</td>
<td>11.22</td>
</tr>
<tr>
<td>CATS sexual</td>
<td>3.49</td>
<td>3.54</td>
</tr>
<tr>
<td>CATS neglect</td>
<td>24.18</td>
<td>24.54</td>
</tr>
<tr>
<td>CATS emotion</td>
<td>11.23</td>
<td>11.25</td>
</tr>
</tbody>
</table>

*Self-compassion and Childhood Trauma*

The first research question asked whether exposure to childhood abuse and trauma is related to self-compassion in adulthood. This analysis utilized the full adult clinical sample (n=79). The results indicated a significant negative correlation with a large effect size between the self-compassion total score and CATS total r= (77) -.430 p=.001, CATS emotional abuse r= (77) -.444 p=.001, and CATS neglect r= (77) -.426 p=.001. There was also a significant
negative correlation with a medium effect size between self-compassion and CATS punishment \( r = (78) - .370 \ p = .001 \), and with a small effect size between self-compassion and CATS sexual abuse \( r = (77) - .179 \ p = .036 \). Greater exposure to childhood emotional abuse, neglect, punishment, and sexual abuse were all significantly related to lower self-compassion in adulthood.

**Self-compassion and PTSD Symptoms**

The second part of the analysis explored the relationship between self-compassion and PTSD symptoms amongst the sample exposed to at least one traumatic life event (n=70). Self-compassion was significantly correlated with total IES-R score \( r(68) = - .293 \ p = .001 \) and with the IES-R subscales of avoidance \( r(68) = - .271 \ p = .001 \), hyper-arousal \( r(68) = - .240 \ p = .005 \) and intrusion \( r(68) = - .258 \ p = .002 \) all with medium effect sizes (see Table 3). Lower levels of self-compassion were significantly related to higher levels of overall PTSD symptoms and post-traumatic avoidance, intrusion and hyper-arousal.

Hierarchical multiple regression analyses were used to explore whether self-compassion was predictive of PTSD symptoms when controlling for age, gender, severity of childhood trauma (as measured by the CATS total) and exposure to traumatic life events (as measured by the LEC ‘happened to me’ scale). Four separate analyses were conducted with the dependent variables IES-R total, avoidance, intrusion and hyper-arousal. Variables were entered sequentially into the model based on the theoretical background. Age and gender were entered in stage 1, followed by CATS total score and LEC happened to me score in stage 2 and self-compassion in stage 3. Multicollinearity was checked for each model, all variance inflation factor (VIF) values were below 10 and the tolerance statistics were all well above 0.2, therefore there were no concerns about multicollinearity (Field 2000). The Durbin-
Watson statistic was within acceptable limits for each model indicating that the assumption of independent errors was tenable (Field, 2000).
**Table 3.**
*Kendall’s Tau Correlation Coefficients*

<table>
<thead>
<tr>
<th></th>
<th>M</th>
<th>SD</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. SCS total</td>
<td>56.69</td>
<td>20.48</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. IES total</td>
<td>48.20</td>
<td>20.21</td>
<td>-.293*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. IES avoidance</td>
<td>16.62</td>
<td>8.57</td>
<td>-.271*</td>
<td>.744*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. IES hyper</td>
<td>13.62</td>
<td>5.81</td>
<td>-.240*</td>
<td>.639*</td>
<td>.442*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. IES intrusion</td>
<td>17.96</td>
<td>8.50</td>
<td>-.258*</td>
<td>.746*</td>
<td>.544*</td>
<td>.460*</td>
<td>-</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. CATS total</td>
<td>57.84</td>
<td>34.12</td>
<td>-.461*</td>
<td>.389*</td>
<td>.356*</td>
<td>.356*</td>
<td>.290*</td>
<td>-</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. LEC happened</td>
<td>3.46</td>
<td>2.03</td>
<td>-.084</td>
<td>.276*</td>
<td>.215*</td>
<td>.275*</td>
<td>.229*</td>
<td>.305*</td>
<td>-</td>
<td></td>
</tr>
<tr>
<td>8. Age</td>
<td>42.39</td>
<td>12.60</td>
<td>.039</td>
<td>-.039</td>
<td>-.078</td>
<td>.008</td>
<td>.025</td>
<td>-.071</td>
<td>.087</td>
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<tr>
<td>9. PTGI total</td>
<td>34.12</td>
<td>24.14</td>
<td>.004</td>
<td>.155</td>
<td>.128</td>
<td>.122</td>
<td>.106</td>
<td>.043</td>
<td>.079</td>
<td>-.080</td>
</tr>
</tbody>
</table>

*significant Benjamini-Hochberg adjusted p value*
The hierarchical multiple regression for IES-R total score (see Table 4) revealed that in stage one, neither age or gender contributed significantly to IES-R total score, F(2, 65) = 1.27, p=.289. In the second stage of the model the CATS total score and LEC happened score contributed significantly to the regression model, F(2, 63) = 11.87, p=.001 and accounted for 30% of the variance in IES-R total score. In the final stage of the model self-compassion explained an additional 10% of the variance in the model and this was significant, F(1, 62) =9.74, p .003. Analysis of the individual predictors showed that self-compassion (b=-.38 (-.58- -.13), p=.003) was the only significant predictor of IES-R total as the bootstrapped confidence intervals did not contain zero.

Table 4.
Results of Hierarchical Regression: Association between Self-compassion and IES Total Score when Controlling for Age, Gender, Trauma Severity and Exposure

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>P</th>
<th>R²</th>
<th>ΔR²</th>
<th>P</th>
</tr>
</thead>
<tbody>
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<td></td>
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</tr>
<tr>
<td>Age</td>
<td>-.045</td>
<td>.23</td>
<td>-.03</td>
<td>.840</td>
<td>.04</td>
<td>.01</td>
<td>.289</td>
</tr>
<tr>
<td>Gender</td>
<td>8.18</td>
<td>5.88</td>
<td>.19</td>
<td>.161</td>
<td></td>
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<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.02</td>
<td>.19</td>
<td>-.01</td>
<td>.910</td>
<td>.40</td>
<td>.35</td>
<td>.003</td>
</tr>
<tr>
<td>Gender</td>
<td>5.20</td>
<td>4.65</td>
<td>.12</td>
<td>.267</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATS total</td>
<td>.251</td>
<td>.08</td>
<td>.42</td>
<td>.004*</td>
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<tr>
<td>LEC Happened</td>
<td>1.80</td>
<td>1.47</td>
<td>.18</td>
<td>.236</td>
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<tr>
<td><strong>Step 3</strong></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.02</td>
<td>.19</td>
<td>-.01</td>
<td>.910</td>
<td>.40</td>
<td>.35</td>
<td>.003</td>
</tr>
<tr>
<td>Gender</td>
<td>5.20</td>
<td>4.65</td>
<td>.12</td>
<td>.267</td>
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<td>CATS total</td>
<td>.10</td>
<td>.08</td>
<td>.17</td>
<td>.193</td>
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<td></td>
</tr>
<tr>
<td>LEC</td>
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<td>1.37</td>
<td>.25</td>
<td>.081</td>
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<td></td>
</tr>
<tr>
<td>SCS total</td>
<td>-.38</td>
<td>.12</td>
<td>-.39</td>
<td>.003*</td>
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</tr>
</tbody>
</table>

95% bias corrected and accelerated confidence intervals and standard errors based on 1000 bootstrap samples (*significant p<.05)
The hierarchical regression for IES-avoidance (see Table 5) showed that a model with age and gender in stage one was not significant \(F(2, 65)=2.94, p=.060\). In the second stage, with the addition of CATS total and LEC, the model was significant \(F(2, 63)=10.03, p=.001\) and accounted for 30% of the variance in IES-avoidance symptoms. In the final stage self-compassion explained an additional 7% of the variance in IES-avoidance and this was significant \(F(1, 62)=6.46, p=.014\). Analysis of individual predictors showed that self-compassion (\(b=-.13 (-.24-.02), p=.017\)) was the only significant predictor of IES-avoidance, as the bootstrapped confidence intervals did not include zero.

Table 5.
Results of Hierarchical Regression: Association between Self-compassion and IES Avoidance Score when Controlling for Age, Gender, Trauma Severity and Exposure

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>(95% confidence interval)</th>
<th>SE B</th>
<th>B</th>
<th>P</th>
<th>(R^2)</th>
<th>(\Delta R^2)</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.061</td>
<td>(-.23-.12)</td>
<td>.09</td>
<td>-.09</td>
<td>.506</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>4.86</td>
<td>(.83-.9.43)</td>
<td>2.13</td>
<td>.26</td>
<td>.031*</td>
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<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.03</td>
<td>(-.18-.13)</td>
<td>.08</td>
<td>-.05</td>
<td>.674</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>3.72</td>
<td>(.21-.7.64)</td>
<td>1.94</td>
<td>.20</td>
<td>.068</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATS total</td>
<td>.11</td>
<td>(.04-.17)</td>
<td>.03</td>
<td>.42</td>
<td>.005*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEC Happened</td>
<td>.52</td>
<td>(.64-.1.63)</td>
<td>.58</td>
<td>.12</td>
<td>.375</td>
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<tr>
<td><strong>Step 3</strong></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>-.04</td>
<td>(-.19-.11)</td>
<td>.08</td>
<td>-.06</td>
<td>.578</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>3.64</td>
<td>(.10-.7.44)</td>
<td>1.88</td>
<td>.20</td>
<td>.061</td>
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<td></td>
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<tr>
<td>CATS total</td>
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<td>(.03-.13)</td>
<td>.04</td>
<td>.21</td>
<td>.173</td>
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</tr>
<tr>
<td>LEC</td>
<td>.77</td>
<td>(-.34-.1.84)</td>
<td>.55</td>
<td>.18</td>
<td>.173</td>
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</tr>
<tr>
<td>SCS total</td>
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<td>(-.24-.1.02)</td>
<td>.06</td>
<td>-.32</td>
<td>.017*</td>
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</table>

95% bias corrected and accelerated confidence intervals and standard errors based on 1000 bootstrap samples (*significant \(p<.05\)
The hierarchical regression for IES-Intrusion (see Table 6) showed that age and gender in stage one did not lead to a significant model, F(2, 65)=1.08, p=.345. In the second stage, adding CATS total and LEC resulted in a significant model, F(2, 63)=5.871, p=.005, accounting for 18% of the variance in IES-intrusion symptoms. In the final stage of the model, self-compassion explained an additional 13% of the variance and this was significant F(1, 62)= 11.20, p=.001. Analysis of individual predictors showed that self-compassion (b=-.18 (-.28--.08), p=.002) was the only significant predictor of IES-intrusion as the bootstrapped confidence intervals did not include zero.

Table 6.  
Results of Hierarchical Regression: Association between Self-compassion and IES Intrusion Score when Controlling for Age, Gender, Trauma Severity and Exposure

<table>
<thead>
<tr>
<th>Variable</th>
<th>B (95% confidence interval)</th>
<th>SE B</th>
<th>β</th>
<th>P</th>
<th>R²</th>
<th>∆R²</th>
<th>P</th>
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</tr>
<tr>
<td>Age</td>
<td>.025 (.15-.23)</td>
<td>.09</td>
<td>.04</td>
<td>.768</td>
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<td></td>
<td></td>
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<tr>
<td>Gender</td>
<td>3.31 (-1.51-8.76)</td>
<td>2.61</td>
<td>.18</td>
<td>.207</td>
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<tr>
<td><strong>Step 2</strong></td>
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<td></td>
</tr>
<tr>
<td>Age</td>
<td>.04 (-.12-.23)</td>
<td>.08</td>
<td>.06</td>
<td>.605</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>2.45 (-2.38-7.40)</td>
<td>2.42</td>
<td>.13</td>
<td>.311</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CATS total</td>
<td>.08 (.01-.14)</td>
<td>.03</td>
<td>.31</td>
<td>.031*</td>
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<td></td>
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</tr>
<tr>
<td>LEC Happened</td>
<td>.62 (-.46-1.83)</td>
<td>.61</td>
<td>.15</td>
<td>.329</td>
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</tr>
<tr>
<td><strong>Step 3</strong></td>
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<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.03 (-.12-.20)</td>
<td>.08</td>
<td>.04</td>
<td>.720</td>
<td></td>
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</tr>
<tr>
<td>Gender</td>
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<td>2.50</td>
<td>.13</td>
<td>.295</td>
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<tr>
<td>CATS total</td>
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<td>.03</td>
<td>.02</td>
<td>.899</td>
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<tr>
<td>LEC</td>
<td>.96 (-1.13-2.00)</td>
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<td>.23</td>
<td>.096</td>
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<tr>
<td>SCS total</td>
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<td>.05</td>
<td>-.44</td>
<td>.002*</td>
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</tbody>
</table>

95% bias corrected and accelerated confidence intervals and standard errors based on 1000 bootstrap samples (*significant p<.05)
The hierarchical regression for IES-hyper-arousal (see Table 7) showed that age and gender in stage one were not significant $F(2, 65)=.01, p=.988$. In the second stage, CATS total and LEC contributed significantly to the regression model $F(2, 63)=12.07, p=.001$ and accounted for 28% of the variance in IES-hyper-arousal symptoms. In the final stage of the model self-compassion explained an additional 3% of the variance in IES-hyper-arousal which was not significant, $F(1, 62)= 2.86, p=.096$. None of the individual predictors significantly predicted IES-hyper-arousal in the final model.

Table 7.

Results of Hierarchical Regression: Association between Self-compassion and IES Hyper-arousal Score when Controlling for Age, Gender, Trauma Severity and Exposure

<table>
<thead>
<tr>
<th>Variable (N=70)</th>
<th>B (95% confidence interval)</th>
<th>SE B</th>
<th>B</th>
<th>P</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>P</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Age</td>
<td>- .01 (.61- .14)</td>
<td>.07</td>
<td>-.02</td>
<td>.893</td>
<td>.000</td>
<td>-.030</td>
<td>.988</td>
</tr>
<tr>
<td>Gender</td>
<td>.02 (-3.17-3.21)</td>
<td>1.60</td>
<td>.01</td>
<td>.991</td>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>.01 (-.11-.13)</td>
<td>.06</td>
<td>.01</td>
<td>.939</td>
<td></td>
<td>.277</td>
<td>.232</td>
</tr>
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<td>Gender</td>
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<td>1.40</td>
<td>-.06</td>
<td>.614</td>
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</tr>
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<td>CATS total</td>
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<td>.02</td>
<td>.40</td>
<td>.003*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEC Happened</td>
<td>.65 (-.10-1.46)</td>
<td>.42</td>
<td>.23</td>
<td>.139</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>- .01 (-.12-.13)</td>
<td>.06</td>
<td>-.01</td>
<td>.975</td>
<td></td>
<td>.309</td>
<td>.254</td>
</tr>
<tr>
<td>Gender</td>
<td>-.78 (-3.40-1.95)</td>
<td>1.35</td>
<td>-.06</td>
<td>.577</td>
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</tr>
<tr>
<td>CATS total</td>
<td>.77 (-.01-.09)</td>
<td>.02</td>
<td>.25</td>
<td>.087</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>LEC</td>
<td>-.06 (-.03-1.56)</td>
<td>.41</td>
<td>.27</td>
<td>.069</td>
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<td></td>
</tr>
<tr>
<td>SCS total</td>
<td>.04 (-13-.01)</td>
<td>.04</td>
<td>-.22</td>
<td>.087</td>
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<td></td>
<td></td>
</tr>
</tbody>
</table>

95% bias corrected and accelerated confidence intervals and standard errors based on 1000 bootstrap samples (*significant $p<.05$)
Self-compassion and Post-traumatic Growth

The final research question explored whether there was a relationship between self-compassion and post-traumatic growth. The question was addressed using the sample exposed to at least one traumatic event (n=70). This analysis revealed that there was not a significant relationship between self-compassion and post-traumatic growth (r(68)=.004 p=.958) (see Table 3).

Discussion

The first part of this study investigated whether the experience of childhood trauma was related to an individual’s ability to self-compassionate in adulthood. The results showed that greater experience of childhood neglect, emotional abuse, punishment and sexual abuse were related to lower levels of self-compassion in adulthood. This finding is consistent with the theory that self-compassion develops along with early attachment systems of receiving love and care in childhood (Gilbert, 2009). The results also support the findings of Tanaka et al. (2011) who found that greater experience of childhood neglect was associated with lower self-compassion in adolescents, and this study advances this finding into an adult clinical sample. Childhood neglect and emotional abuse had the largest effect sizes with self-compassion; neglect has been argued to have a unique detrimental effect on development as it is not incident specific but rather chronic in nature, and can result in severe cognitive deficits, greater social withdrawal and internalizing of problems (Hildyard & Wolfe, 2002). Although a small effect size was found for the relationship between self-compassion and sexual abuse it is worth noting that the measure of child sexual abuse relied on self-report and this may have been biased by a reluctance to disclose such personal information.

The second part of the study explored the relationships between self-compassion and PTSD symptoms, and whether self-compassion was predictive of PTSD in an adult clinical
sample exposed to at least one traumatic life event. Lower self-compassion was significantly correlated with greater PTSD symptoms as measured by the IES-R total score. Exploration of the IES-R subscales indicated that lower self-compassion was significantly correlated with higher reported symptoms of avoidance, hyper-arousal and intrusion. This finding differs from the previous findings from Thompson and Waltz (2008) who found low self-compassion was significantly correlated with high avoidance symptoms, but not with hyper-arousal or intrusion. This may be due to the use of a clinical sample in this study where the percentage of participants meeting PTSD criteria was considerably higher. The results of the regression analysis showed that self-compassion predicted a unique amount of the variance in PTSD symptoms of avoidance and intrusion but not hyper-arousal when controlling for age, gender, severity of childhood trauma and lifetime trauma exposure. Feurer, Nishith, and Resick (2005) suggest a theoretical model in which intrusion and avoidance are functionally related mechanisms distinct from hyper-arousal in that active avoidance becomes a means of coping with intrusive symptoms; their research shows that intrusive symptoms explain the majority of variance in avoidance symptoms, beyond that explained by hyper-arousal. These results suggest that self-compassion is an important factor in maintaining the cycle PTSD avoidance and intrusion symptoms, therefore interventions for PTSD would benefit from incorporating techniques to increase self-compassion.

The final research question explored whether there was a relationship between post-traumatic growth and self-compassion; the results indicate there was no significant relationship between these variables. Relatively little is known about what factors may predict PTG. It is worth noting that the self-reported PTG mean score in this study was significantly lower than that found in other studies exploring PTG (Morrill, Brewer, O'Neill, Lillie, Dees, Carey, & Rimer, 2008). The PTGI data in this study had a relatively flat distribution, and therefore variations in PTG may not be reflected in this sample. The PTGI
has received some criticism as it is a self-report retrospective measure. It has been shown that scores on the PTGI are unrelated to actual growth scores measured by assessing change longitudinally pre and post trauma, therefore perceived growth and actual growth have been theorized to represent different processes (Frazier, Tennen, Gavian, Park, Tomich, Tashiro, 2009). Potentially longitudinal research using a different measure of PTG may find contrasting results.

**Strengths and Limitations**

To the authors’ knowledge, this is the first piece of research to explore the relationships between trauma exposure, self-compassion and post-traumatic stress and growth in an adult clinical sample. The updated diagnostic criteria for PTSD contain the addition of symptoms including negative self-cognitions, and emotions such as shame, blame and guilt. These symptoms are all theoretically related to self-compassion and therefore research in this area is valuable. Future research exploring the role of self-compassion and concepts such as trauma related guilt, shame and self-blame in PTSD would be useful.

It is important however to acknowledge limitations of this study. Because the study was cross sectional in design it was not possible to determine the directionality of effects; longitudinal analysis may have provided better insight into the development and trajectory of these relationships. Another limitation within the research design was in the exclusive use of self-report measures. This is particularly pertinent in research on PTSD which may be affected by characteristic symptoms of avoidance, numbing, amnesic or dissociative symptoms which may alter responses or distort recollections (Merckelbach & Muris, 2001). Difficulties in the accuracy of recall in recording early childhood traumatic experiences in an adult population have been well documented (Hardt & Rutter, 2004) and the issue of recall bias may affect retrospective accounts (Hassan, 2005). There is also the aspect of social
desirability which may cause bias in how an individual responds to self-report measures. Due to the personal nature of the questionnaires used in this study and the pattern of missing data in relation to questions about sexual abuse, this a relevant limitation of this work.

Clinical Implications

When working with individuals who have experienced childhood trauma and abuse it is vital for clinicians to fully understand the impact of these adverse experiences, so that they can conduct a comprehensive assessment and develop an effective, holistic treatment plan. This study suggests that those with experience of childhood abuse are less self-compassionate in adulthood. The largest effect size was between self-compassion and emotional abuse or neglect. This is particularly relevant for clinical work as childhood neglect is the most commonly reported form of childhood maltreatment (Sedlak & Broadhurst, 1996). Interventions aimed at increasing self-compassion maybe particularly relevant for individuals who have experienced childhood abuse. Compassion Focused Therapy is a trans-diagnostic approach and therefore may be applicable for a range of presentations in which childhood abuse has been a predisposing factor.

This study showed that self-compassion is predictive of severity of PTSD symptoms, independent of age, gender, trauma exposure and childhood trauma, thereby suggesting that increasing self-compassion would be effective to treat PTSD symptoms, particularly avoidance and intrusion symptoms. Interventions aimed at reducing avoidance symptoms in PTSD may be a useful way to facilitate processing of the traumatic experience (Follette, Palm, & Pearson, 2006). Initial research has suggested that self-compassion interventions are effective for treating symptoms of PTSD. For example, Kearney, Malte, McManus, Martinez, Felleman and Simpson (2013) found that a loving kindness meditation intervention enhanced self-compassion and reduced symptoms of depression and PTSD in a veteran sample.
Beaumont, Galpin and Jenkins (2012) found that compassionate mind training (CMT) was as effective for treating PTSD symptoms as CBT, but the CMT group, also showed significant improvement in self-compassion compared to the CBT group. These initial studies suggest that further research into compassion focused approaches with PTSD is warranted.

Conclusions

Experience of childhood trauma and abuse is related to lower self-compassion in adulthood. This suggests that childhood trauma may restrict the development of self-compassion as an affect regulation system in childhood, although further longitudinal research is needed to understand the direction of these relationships. Self-compassion was not significantly related to post-traumatic growth in this study. However, lower ability to be self-compassionate was related to greater PTSD symptoms of avoidance, intrusion and hyper-arousal. When controlling for age, gender, childhood trauma severity and life time exposure to traumatic events self-compassion was predictive of avoidance and intrusion symptoms. This suggests that low self-compassion may be an important factor in maintaining the cycle of avoidance and intrusive symptoms. Increasing self-compassion in PTSD may be a useful intervention to reduce avoidance and intrusion symptoms.
References


Hassan, E. (2005) Recall bias can be a threat to retrospective and prospective research designs. *The Internet Journal of Epidemiology, 3*(2)


Hassan, E. (2005) Recall bias can be a threat to retrospective and prospective research designs. *The Internet Journal of Epidemiology, 3*(2)


Appendix 1.

Journal of Clinical Psychology Author Guidelines

Manuscript Submission

Manuscripts for submission to The Journal of Clinical Psychology should be forwarded to the Editor as follows:

1. Go to your Internet browser (e.g., Netscape, Internet Explorer).
2. Go to the URL http://mc.manuscriptcentral.com/jclp
3. Register (if you have not done so already).
4. Go to the Author Center and follow the instructions to submit your paper.
5. Please upload the following as separate documents: the title page (with identifying information), the body of your manuscript (containing no identifying information), each table, and each figure.
6. Please note that this journal's workflow is double-blinded. Authors must prepare and submit files for the body of the manuscript that are anonymous for review (containing no name or institutional information that may reveal author identity).
7. All related files will be concatenated automatically into a single .PDF file by the system during upload. This is the file that will be used for review. Please scan your files for viruses before you send them, and keep a copy of what you send in a safe place in case any of the files need to be replaced.

Timothy R. Elliott, Editor-in-Chief
The Journal of Clinical Psychology
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New York, NY 10027
E-mail: farber@exchange.tc.columbia.edu

Manuscript Preparation

Format. Number all pages of the manuscript sequentially. Manuscripts should contain each of the following elements in sequence: 1) Title page 2) Abstract 3) Text 4) Acknowledgments 5) References 6) Tables 7) Figures 8) Figure Legends 9) Permissions. Start each element on a new page. Because the Journal of Clinical Psychology utilizes an anonymous peer-review process, authors’ names and affiliations should appear ONLY on the title page of the
manuscript. Please submit the title page as a separate document within the attachment to facilitate the anonymous peer review process.

**Style**. Please follow the stylistic guidelines detailed in the *Publication Manual of the American Psychological Association, Sixth Edition*, available from the American Psychological Association, Washington, D.C. *Webster's New World Dictionary of American English, 3rd College Edition*, is the accepted source for spelling. Define unusual abbreviations at the first mention in the text. The text should be written in a uniform style, and its contents as submitted for consideration should be deemed by the author to be final and suitable for publication.

**Reference Style and EndNote**. EndNote is a software product that we recommend to our journal authors to help simplify and streamline the research process. Using EndNote's bibliographic management tools, you can search bibliographic databases, build and organize your reference collection, and then instantly output your bibliography in any Wiley journal style. Download Reference Style for this Journal: If you already use EndNote, you can download the reference style for this journal. How to Order: To learn more about EndNote, or to purchase your own copy, click here. Technical Support: If you need assistance using EndNote, contact endnote@isiresearchsoft.com, or visit www.endnote.com/support.

**Title Page**. The title page should contain the complete title of the manuscript, names and affiliations of all authors, institution(s) at which the work was performed, and name, address (including e-mail address), telephone and telefax numbers of the author responsible for correspondence. Authors should also provide a short title of not more than 45 characters (including spaces), and five to ten key words, that will highlight the subject matter of the article. Please submit the title page as a separate document within the attachment to facilitate the anonymous peer review process.

**Abstract**. Abstracts are required for research articles, review articles, commentaries, and notes from the field. A structured abstract is required and should be 150 words or less. The headings that are required are:

- **Objective(s)**: Succinctly state the reason, aims or hypotheses of the study.
- **Method (or Design)**: Describe the sample (including size, gender and average age), setting, and research design of the study.
- **Results**: Succinctly report the results that pertain to the expressed objective(s).
- **Conclusions**: State the important conclusions and implications of the findings.

In addition, for systematic reviews and meta-analyses the following headings can be used, Context; Objective; Methods (data sources, data extraction); Results; Conclusion. For Clinical reviews: Context; Methods (evidence acquisition); Results (evidence synthesis); Conclusion.

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**Final Revised Manuscript**. A final version of your accepted manuscript should be submitted electronically, using the instructions for electronic submission detailed above.
Artwork Files. Figures should be provided in separate high-resolution EPS or TIFF files and should not be embedded in a Word document for best quality reproduction in the printed publication. Journal quality reproduction will require gray scale and color files at resolutions yielding approximately 300 ppi. Bitmapped line art should be submitted at resolutions yielding 600-1200 ppi. These resolutions refer to the output size of the file; if you anticipate that your images will be enlarged or reduced, resolutions should be adjusted accordingly. All print reproduction requires files for full-color images to be in a CMYK color space. If possible, ICC or ColorSync profiles of your output device should accompany all digital image submissions. All illustration files should be in TIFF or EPS (with preview) formats. Do not submit native application formats.

Software and Format. Microsoft Word is preferred, although manuscripts prepared with any other microcomputer word processor are acceptable. Refrain from complex formatting; the Publisher will style your manuscript according to the journal design specifications. Do not use desktop publishing software such as PageMaker or Quark XPress. If you prepared your manuscript with one of these programs, export the text to a word processing format. Please make sure your word processing program's "fast save" feature is turned off. Please do not deliver files that contain hidden text: for example, do not use your word processor's automated features to create footnotes or reference lists.

Article Types

- Research Articles. Research articles may include quantitative or qualitative investigations, or single-case research. They should contain Introduction, Methods, Results, Discussion, and Conclusion sections conforming to standard scientific reporting style (where appropriate, Results and Discussion may be combined).

- Review Articles. Review articles should focus on the clinical implications of theoretical perspectives, diagnostic approaches, or innovative strategies for assessment or treatment. Articles should provide a critical review and interpretation of the literature. Although subdivisions (e.g., introduction, methods, results) are not required, the text should flow smoothly, and be divided logically by topical headings.

- Commentaries. Occasionally, the editor will invite one or more individuals to write a commentary on a research report.

- Editorials. Unsolicited editorials are also considered for publication.

- Notes From the Field. Notes From the Field offers a forum for brief descriptions of advances in clinical training; innovative treatment methods or community based initiatives; developments in service delivery; or the presentation of data from research projects which have progressed to a point where preliminary observations should be disseminated (e.g., pilot studies, significant findings in need of replication). Articles submitted for this section should be limited to a maximum of 10 manuscript pages, and contain logical topical subheadings.

- News and Notes. This section offers a vehicle for readers to stay abreast of major awards, grants, training initiatives; research projects; and conferences in clinical psychology. Items for this section should be summarized in 200 words or less. The Editors reserve the right to determine which News and Notes submissions are appropriate for inclusion in the journal.
Editorial Policy

Manuscripts for consideration by the *Journal of Clinical Psychology* must be submitted solely to this journal, and may not have been published in another publication of any type, professional or lay. This policy covers both duplicate and fragmented (piecemeal) publication. Although, on occasion it may be appropriate to publish several reports referring to the same data base, authors should inform the editors at the time of submission about all previously published or submitted reports stemming from the data set, so that the editors can judge if the article represents a new contribution. If the article is accepted for publication in the journal, the article must include a citation to all reports using the same data and methods or the same sample. Upon acceptance of a manuscript for publication, the corresponding author will be required to sign an agreement transferring copyright to the Publisher; copies of the Copyright Transfer form are available from the editorial office. All accepted manuscripts become the property of the Publisher. No material published in the journal may be reproduced or published elsewhere without written permission from the Publisher, who reserves copyright.

Any possible conflict of interest, financial or otherwise, related to the submitted work must be clearly indicated in the manuscript and in a cover letter accompanying the submission. Research performed on human participants must be accompanied by a statement of compliance with the Code of Ethics of the World Medical Association (Declaration of Helsinki) and the standards established by the author's Institutional Review Board and granting agency. Informed consent statements, if applicable, should be included with the manuscript stating that informed consent was obtained from the research participants after the nature of the experimental procedures was explained.

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**Production Questions:**

Andy Elder  
Tel: 201-748-6694  
Fax: 201-748-8852  
E-mail: aelder@wiley.com
Appendix 2.

**Journal of Traumatic Stress - Author Guidelines**

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Edited By: Daniel S. Weiss, Ph.D.

Impact Factor: 2.083

ISI Journal Citation Reports © Ranking: 2013: 41/111 (Psychology Clinical); 49/124 (Psychiatry (Social Science))

Online ISSN: 1573-6598

**Author Guidelines**

**NIH Public Access Mandate**
For those interested in the Wiley-Blackwell policy on the NIH Public Access Mandate, please visit our policy statement

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Author Services enables authors to track their article - once it has been accepted - through the production process to publication online and in print. Authors can check the status of their articles online and choose to receive automated emails at key stages of production. The author will receive an email with a unique link that enables them to register and have their article automatically added to the system. Please ensure that a complete email address is provided when submitting the manuscript. Visit [http://authorservices.wiley.com/](http://authorservices.wiley.com/) for more details on online production tracking and for a wealth of resources including FAQs and tips on article preparation, submission and more.

**Author Guidelines**

1. The *Journal of Traumatic Stress* accepts submission of manuscripts online at:

   [http://mc.manuscriptcentral.com/jots](http://mc.manuscriptcentral.com/jots)

   Information about how to create an account or submit a manuscript may be found online in the "Get Help Now" menu. Personal assistance also is available by calling 434-817-2040, x167.

2. Three paper formats are accepted. All word counts should include references, tables, and figures. *Regular articles* (no longer than 6,000 words) are theoretical articles, full research
studies, and reviews. Purely descriptive articles are rarely accepted. In special circumstances, the editors will consider longer manuscripts (up to 7,500 words) that describe complex studies. Authors are requested to seek special consideration prior to submitting manuscripts longer than 6,000 words. Brief reports (2,500 words) are for pilot studies or uncontrolled trials of an intervention, case studies that cover a new area, preliminary data on a new problem or population, condensed findings from a study that does not merit a full article, or methodologically oriented papers that replicate findings in new populations or report preliminary data on new instruments. Commentaries (1,000 words or less) cover responses to previously published articles or, occasionally, essays on a professional or scientific topic of general interest. Response commentaries, submitted no later than 8 weeks after the original article is published (12 weeks if outside the U.S.), must be content-directed and use tactful language. The original author is given the opportunity to respond to accepted commentaries.

3. The Journal follows the style recommendations of the 2010 Publication Manual of the American Psychological Association (APA; 6th). Manuscripts should use non-sexist language. Files must be formatted using letter or A4 page size, 1 inch (2.54 cm) margins on all sides, Times New Roman 12 point font, and double-spacing for text, tables, figures, and references.

4. The title page should include the title of the article, the running head (maximum 50 characters) in uppercase flush left, author(s) byline and institutional affiliation, and author note (see pp. 23-25 of the APA manual).

5. An abstract no longer than 200 words follows the title page on a separate page.

6. Format the reference list using APA style: (a) begin on a new page following the text, (b) double-space, (c) use hanging indent format, (d) italicize the journal name or book title, and (e) list alphabetically by last name of first author. If a reference has a Digital Object Identifier (DOI), it must be included as the last element of the reference.

**Journal Article**


**Book**


**Book Chapter**


7. Tables and figures should be formatted in APA style. Count each full-page table or figure as 200 words and each half-page table or figure as 100 words. Tables should be numbered (with Arabic numerals) and referred to by number in the text. Each table and figure should begin on a separate page. Only black and white tables and figures will be accepted (no color).
Figures (photographs, drawings, and charts) should be numbered (with Arabic numerals) and referred to by number in the text. Place figures captions at the bottom of the figure itself, not on a separate page. Include a separate legend to explain symbols if needed. Figures should be in Word, TIFF, or EPS format.

8. Footnotes should be avoided. When their use is absolutely necessary, footnotes should be formatted in APA style and placed on a separate page after the reference list and before any tables.

9. The Journal uses a policy of unmasked review. Author identities are known to reviewers; reviewer identities are not known to authors. During the submission process, authors may request that specific individuals not be selected as reviewers; the names of preferred reviewers also may be provided. Authors may request blind review by contacting jots@ucsf.edu prior to submission in order to provide justification and obtain further instructions.

10. Statement of ethical standards: All work submitted to the Journal of Traumatic Stress must conform to applicable governmental regulations and discipline-appropriate ethical standards. Responsibility for meeting these requirements rests with all authors. Human and animal research studies typically require approval by an institutional research committee that has been established to protect the welfare of human or animal subjects. Data collection as part of clinical services or for program evaluation purposes generally does not require approval by an institutional research committee. However, analysis and presentation of such data outside the program setting may qualify as research (i.e., an effort to produce generalizable knowledge) and require approval by an institutional committee. Those who submit manuscripts to the Journal of Traumatic Stress based on data from these sources are encouraged to consult with a representative of the applicable institutional committee to determine if approval is needed. Presentations that report on a particular person (e.g., a clinical case) also usually require written permission from that person to allow public disclosure for educational purposes, and involve alteration or withholding of information that might directly or indirectly reveal identity and breach confidentiality.

11. Reports of randomized clinical trials should include a flow diagram and a completed CONSORT checklist (available at http://consort-statement.org/resources/downloads). The checklist should be designated as a "Supplementary file not for review" during the online submission process. As of 2007, the Journal of Traumatic Stress now follows CONSORT Guidelines for the reporting of randomized clinical trials. Please visit http://consort-statement.org for information about the consort standards and to download necessary forms.

12. Submission is a representation that the manuscript has not been published previously and is not currently under consideration for publication elsewhere. A statement transferring copyright from the authors (or their employers, if they hold the copyright) to the International Society for Traumatic Stress Studies will be required before the manuscript can be accepted for publication. Click on the Copyright Transfer Agreement link above for the form. Such a written transfer of copyright, which previously was assumed to be implicit in the act of submitting a manuscript, is necessary under the U.S. Copyright Law in order for the publisher to carry through the dissemination of research results and reviews as widely and effectively as possible.

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language may choose to have their manuscript professionally edited before submission to improve the English. Japanese authors can find a list of local English improvement services at http://www.wiley.co.jp/journals/editcontribute.html. All services are paid for and arranged by the author, and use of one of these services does not guarantee acceptance or preference for publication.

14. The author(s) are required to adhere to the "Ethical Principles of Psychologists and Code of Conduct" of the American Psychological Association (visit apastyle.org) or equivalent guidelines in the study's country of origin. If the author(s) were unable to comply, an explanation is requested.

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Appendix 3.

Checklist for measuring study quality

**Reporting**

1. Is the hypothesis/aim/objective of the study clearly described?

<table>
<thead>
<tr>
<th></th>
<th>Yes-1</th>
<th>No-0</th>
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</table>

2. Are the main outcomes to be measured clearly described in the Introduction or Methods section?
If the main outcomes are first mentioned in the Results section, the question should be answered no.

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<th>Yes-1</th>
<th>No-0</th>
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3. Are the characteristics of the patients included in the study clearly described?
In cohort studies and trials, inclusion and/or exclusion criteria should be given. In case-control studies, a case-definition and the source for controls should be given.

<table>
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<th>Yes-1</th>
<th>No-0</th>
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</table>

4. Are the interventions of interest clearly described?
Treatments and placebo (where relevant) that are to be compared should be clearly described.

<table>
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<th>Yes-1</th>
<th>No-0</th>
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</table>

5. Are the distributions of principal confounders in each group of subjects to be compared clearly described?
A list of principal confounders is provided.

<table>
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<th>Yes-1</th>
<th>Partially-2</th>
<th>No-0</th>
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</table>

6. Are the main findings of the study clearly described?
Simple outcome data (including denominators and numerators) should be reported for all major findings so that the reader can check the major analyses and conclusions. (This question does not cover statistical tests which are considered below).

<table>
<thead>
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<th>Yes-1</th>
<th>No-0</th>
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</table>

7. Does the study provide estimates of the random variability in the data for the main outcomes?
In non-normally distributed data the inter-quartile range of results should be reported. In normally distributed data the standard error, standard deviation or confidence intervals should be reported. If the distribution of the data is not described, it must be assumed that the estimates used were appropriate and the question should be answered yes.

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<th>Yes-1</th>
<th>No-0</th>
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8. Have all important adverse events that may be a consequence of the intervention been reported?
This should be answered yes if the study demonstrates that there was a comprehensive attempt to measure adverse events. (A list of possible adverse events is provided).

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<th>Yes-1</th>
<th>No-0</th>
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</table>

9. Have the characteristics of patients lost to follow-up been described?
This should be answered yes where there were no losses to follow-up or where losses to follow-up were so small that findings would be unaffected by their inclusion. This should be answered no where a study does not report the number of patients lost to follow-up.

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<th></th>
<th>Yes-1</th>
<th>No-0</th>
</tr>
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</table>
10. Have actual probability values been reported (e.g. 0.035 rather than <0.05) for the main outcomes except where the probability value is less than 0.001?

Yes-1
No-0

**External validity**
All the following criteria attempt to address the representativeness of the findings of the study and whether they may be generalised to the population from which the study subjects were derived.

11. Were the subjects asked to participate in the study representative of the entire population from which they were recruited?
The study must identify the source population for patients and describe how the patients were selected. Patients would be representative if they comprised the entire source population, an unselected sample of consecutive patients, or a random sample. Random sampling is only feasible where a list of all members of the relevant population exists. Where a study does not report the proportion of the source population from which the patients are derived, the question should be answered as unable to determine.

Yes-1
No-0

12. Were those subjects who were prepared to participate representative of the entire population from which they were recruited?
The proportion of those asked who agreed should be stated. Validation that the sample was representative would include demonstrating that the distribution of the main confounding factors was the same in the study sample and the source population.

Yes-1
No-0

13. Were the staff, places, and facilities where the patients were treated, representative of the treatment the majority of patients receive?
For the question to be answered yes the study should demonstrate that the intervention was representative of that in use in the source population. The question should be answered no if, for example, the intervention was undertaken in a specialist center unrepresentative of the hospitals most of the source population would attend.

Yes-1
No-0

**Internal validity - bias**

14. Was an attempt made to blind study subjects to the intervention they have received?
For studies where the patients would have no way of knowing which intervention they received, this should be answered yes.

Yes-1
No-0

15. Was an attempt made to blind those measuring the main outcomes of the intervention?

16. If any of the results of the study were based on “data dredging”, was this made clear?
Any analyses that had not been planned at the outset of the study should be clearly indicated. If no retrospective unplanned subgroup analyses were reported, then answer yes.

Yes-1
No-0

17. In trials and cohort studies, do the analyses adjust for different lengths of follow-up of patients, or in case-control studies, is the time period between the intervention and outcome the same for cases and controls?
Where follow-up was the same for all study patients the answer should yes. If different lengths of follow-up were adjusted for by, for example, survival analysis the answer should be yes. Studies where differences in follow-up are ignored should be answered no.

Yes-1
No-0
18. Were the statistical tests used to assess the main outcomes appropriate?
The statistical techniques used must be appropriate to the data. For example, nonparametric methods should be used for small sample sizes. Where little statistical analysis has been undertaken but where there is no evidence of bias, the question should be answered yes. If the distribution of the data (normal or not) is not described it must be assumed that the estimates used were appropriate and the question should be answered yes.

| Yes | 1 |
| No  | 0 |

19. Was compliance with the intervention/s reliable?
Where there was non-compliance with the allocated treatment or where there was contamination of one group, the question should be answered no. For studies where the effect of any misclassification was likely to bias any association to the null, the question should be answered yes.

| Yes | 1 |
| No  | 0 |

20. Were the main outcome measures used accurate (valid and reliable)?
For studies where the outcome measures are clearly described, the question should be answered yes. For studies which refer to other work or that demonstrates the outcome measures are accurate, the question should be answered as yes.

| Yes | 1 |
| No  | 0 |

Internal validity - confounding (selection bias)
21. Were the patients in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited from the same population?
For example, patients for all comparison groups should be selected from the same hospital. The question should be answered unable to determine for cohort and case control studies where there is no information concerning the source of patients included in the study.

| Yes | 1 |
| No  | 0 |

22. Were study subjects in different intervention groups (trials and cohort studies) or were the cases and controls (case-control studies) recruited over the same period of time?
For a study which does not specify the time period over which patients were recruited, the question should be answered as unable to determine.

| Yes | 1 |
| No  | 0 |

23. Were study subjects randomised to intervention groups?
Studies which state that subjects were randomised should be answered yes except where method of randomisation would not ensure random allocation. For example, alternate allocation would score no because it is predictable.

| Yes | 1 |
| No  | 0 |

24. Was the randomised intervention assignment concealed from both patients and health care staff until recruitment was complete and irrevocable?
All non-randomised studies should be answered no. If assignment was concealed from patients but not from staff, it should be answered no.

| Yes | 1 |
| No  | 0 |

25. Was there adequate adjustment for confounding in the analyses from which the main findings were drawn?
This question should be answered no for trials if: the main conclusions of the study were based on analyses of treatment rather than intention to treat; the distribution of known confounders in the different treatment groups was not described; or the distribution of known confounders differed between the treatment groups but was not taken into account in the analyses. In non-randomised studies if the effect of the main confounders was not investigated or confounding was demonstrated but no adjustment was made in the final analyses the question should be answered as no.

| Yes | 1 |
| No  | 0 |
26. Were losses of patients to follow-up taken into account?
If the numbers of patients lost to follow-up are not reported, the question should be answered as unable to determine. If the proportion lost to follow-up was too small to affect the main findings, the question should be answered yes.

Yes-1
No-0

**Power**

27. Did the study have sufficient power to detect a clinically important effect where the probability value for a difference being due to chance is less than 5%?

Yes-1
No-0
Appendix 4.

Health Research Authority

NRES Committee East of England - Cambridge South

The Old Chapel
Royal Standard Place
Nottingham
NG1 6FS

Telephone: 0115 6830437 (Direct Line)

30 January 2014

Ms Kirsty Banks
Trainee Clinical Psychologist
NHS Forth Valley
Westbank Unit
West Bridge Street
Falkirk
FK1 5RQ

Dear Ms Banks

Study title: The impact of difficult life events on our experience of self-compassion, post traumatic stress and growth

REC reference: 14/EE/0037
IRAS project ID: 139744

Thank you for your letter of 24 January 2014, responding to the Proportionate Review Sub-Committee’s request for changes to the documentation for the above study.

The revised documentation has been reviewed and approved by the sub-committee.

We plan to publish your research summary wording for the above study on the NRES website, together with your contact details, unless you expressly withhold permission to do so. Publication will be no earlier than three months from the date of this favourable opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to withhold permission to publish, please contact the REC Manager Ms Trish Wheat, nrescommittee.eastofengland-cambridgesouth@nhs.net.

Confirmation of ethical opinion

On behalf of the Committee, I am pleased to confirm a favourable ethical opinion for the above research on the basis described in the application form, protocol and supporting documentation as revised.

Ethical review of research sites

The favourable opinion applies to all NHS sites taking part in the study, subject to management permission being obtained from the NHS/HSC R&D office prior to the start of the study (see “Conditions of the favourable opinion” below).
Conditions of the favourable opinion

The favourable opinion is subject to the following conditions being met prior to the start of the study.

Management permission or approval must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission ("R&D approval") should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements.

Guidance on applying for NHS permission for research is available in the Integrated Research Application System or at [http://www.rdforum.nhs.uk](http://www.rdforum.nhs.uk).

Where a NHS organisation’s role in the study is limited to identifying and referring potential participants to research sites ("participant identification centre"), guidance should be sought from the R&D office on the information it requires to give permission for this activity.

For non-NHS sites, site management permission should be obtained in accordance with the procedures of the relevant host organisation.

Sponsors are not required to notify the Committee of approvals from host organisations.

Registration of Clinical Trials

All clinical trials (defined as the first four categories on the IRAS filter page) must be registered on a publically accessible database within 6 weeks of recruitment of the first participant (for medical device studies, within the timeline determined by the current registration and publication trees).

There is no requirement to separately notify the REC but you should do so at the earliest opportunity e.g. when submitting an amendment. We will audit the registration details as part of the annual progress reporting process.

To ensure transparency in research, we strongly recommend that all research is registered but for non clinical trials this is not currently mandatory.

If a sponsor wishes to contest the need for registration they should contact Catherine Blewett ([catherineblewett@nhs.net](mailto:catherineblewett@nhs.net)), the HRA does not, however, expect exceptions to be made. Guidance on where to register is provided within IRAS.

You should notify the REC in writing once all conditions have been met (except for site approvals from host organisations) and provide copies of any revised documentation with updated version numbers. The REC will acknowledge receipt and provide a final list of the approved documentation for the study, which can be made available to host organisations to facilitate their permission for the study. Failure to provide the final versions to the REC may cause delay in obtaining permissions.

It is the responsibility of the sponsor to ensure that all the conditions are complied with before the start of the study or its initiation at a particular site (as applicable).
Approved documents

The documents reviewed and approved by the Committee are:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of insurance or indemnity</td>
<td></td>
<td>25 June 2013</td>
</tr>
<tr>
<td>Investigator CV</td>
<td>Kirsty J Banks</td>
<td></td>
</tr>
<tr>
<td>Investigator CV</td>
<td>Emily Frances Newman</td>
<td></td>
</tr>
<tr>
<td>Letter of invitation to participant</td>
<td>2</td>
<td>20 January 2014</td>
</tr>
<tr>
<td>Participant Information Sheet</td>
<td>2</td>
<td>20 January 2014</td>
</tr>
<tr>
<td>Protocol</td>
<td>2</td>
<td>20 January 2014</td>
</tr>
<tr>
<td>Questionnaire: Demographic Information</td>
<td></td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: Impact of Events - Revised</td>
<td>1</td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: Life Events Checklist</td>
<td>1</td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: Post traumatic growth inventory</td>
<td>1</td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: Self Compassion scale</td>
<td>1</td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: Basic Emotions Scale</td>
<td>1</td>
<td>30 November 2013</td>
</tr>
<tr>
<td>Questionnaire: CATS</td>
<td></td>
<td>30 November 2013</td>
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<tr>
<td>REC application</td>
<td>139744/547832/1/132</td>
<td>07 January 2014</td>
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<td>REC application</td>
<td>139744/555303/1/328</td>
<td>21 January 2014</td>
</tr>
<tr>
<td>Response to Request for Further Information</td>
<td></td>
<td>22 January 2014</td>
</tr>
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</table>

Statement of compliance

The Committee is constituted in accordance with the Governance Arrangements for Research Ethics Committees and complies fully with the Standard Operating Procedures for Research Ethics Committees in the UK.

After ethical review

Reporting requirements

The attached document "After ethical review – guidance for researchers" gives detailed guidance on reporting requirements for studies with a favourable opinion, including:

- Notifying substantial amendments
- Adding new sites and investigators
- Notification of serious breaches of the protocol
- Progress and safety reports
- Notifying the end of the study

The NRES website also provides guidance on these topics, which is updated in the light of changes in reporting requirements or procedures.

Feedback

You are invited to give your view of the service that you have received from the National Research Ethics Service and the application procedure. If you wish to make your views known
please use the feedback form available on the website.

Further information is available at National Research Ethics Service website > After Review

14/EE/0037 Please quote this number on all correspondence

We are pleased to welcome researchers and R & D staff at our NRES committee members’
training days – see details at http://www.hra.nhs.uk/hra-training/

With the Committee’s best wishes for the success of this project.

Yours sincerely

[Signature]

Dr Leslie Gelling
Chair

Email: nrescommittee.eastofengland-cambridgesouth@nhs.net

Enclosures: "After ethical review – guidance for researchers"

Copy to: Charlotte Clarke, University of Edinburgh

Ms Allyson Bailey, NHS Forth Valley
## Appendix 5.

### Inclusion and exclusion criteria

<table>
<thead>
<tr>
<th>Exclusion Criteria</th>
<th>Inclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Individuals who are inpatients</td>
<td>• Fluent in English</td>
</tr>
<tr>
<td>• Individuals with a learning disability</td>
<td>• Aged 18-65</td>
</tr>
<tr>
<td>• Individuals who are unable to provide informed consent</td>
<td>• On the waiting list for 1:1 psychological therapy in primary care services</td>
</tr>
<tr>
<td>• Individuals with a diagnosis of Schizophrenia</td>
<td></td>
</tr>
</tbody>
</table>
Appendix 6.

Participant Information Sheet

You are being invited to participate in a research project entitled: “An exploration of self-compassion, posttraumatic stress and growth”

Please read this information sheet carefully and decide whether you wish to take part.

Thank you for reading this.

What is this study about?

The aim of this research project is to investigate some of the psychological effects that difficult life experiences can have, and to find out if there are things that reduce the negative impact of such experiences.

It is hoped that the information generated by the study will help to aid professionals understanding and knowledge of how difficult life experiences affect us and what individual factors help us cope.

Even if you do not feel that you have been affected by difficult life experiences, your participation in this study is still useful.

Why have I been asked to take part?

You have been sent this information pack as you have been referred to primary care psychology services; this information pack is being passed onto anyone whom has opted in for an appointment with the service.

Who is carrying out this research project?

This research is being undertaken as part of a Clinical Psychology Doctorate thesis through the University of Edinburgh. The primary researcher (Kirsty Banks) is employed within NHS Forth Valley as a Trainee Clinical Psychologist. The study has been reviewed by academic staff at the University of Edinburgh, approved by NHS Research & Development and has been subject to ethical review by a Research Ethics Committee.

What will I have to do?

If you are interested in taking part, then this will involve completing the enclosed questionnaires, and returning them in the envelope provided. There are five questionnaires which should take no more than approximately half an hour to complete.

These questionnaires will ask about a range of different things including: basic information about you (such as gender and age); some information about the type of life experiences you have had; the impact this experience has had and other questions about how you think, feel and behave in your daily life.
There is a stamped addressed envelope in the pack to return your questionnaires. Please return them by 28th February 2015.

**What are the benefits of taking part?**

Some people enjoy taking part in research because they feel proud to be helping new understanding to be gained. You may also find that some of the questionnaires are quite interesting to complete. It is hoped that the research may in time lead to improvements in care for some people with traumatic stress, but this may not occur or may not be of direct benefit for you.

**What will happen if I become upset/ distressed whilst participating in the study?**

Some questions may cause unpleasant thoughts or memories, and you may prefer not to answer some of them. If you would like to talk to someone about how the questions make you feel, the researcher can be contacted and is trained to support people in distress. Depending on how distressed you are, and if we had any concerns about your safety or the safety of others then the researcher may contact your GP or other professionals on your behalf. You will also have the opportunity to discuss any feelings raised by these questionnaires with your therapist at your first appointment with primary care psychology.

There are services that can be contacted 24/7 for telephone support:
Samaritans- 08457 90 90 90
Breathing Space- 0800 83 85 87

There are no expected long-term harmful consequences to this study.

**Is there any reason I would not be allowed/should not take part?**

It is your decision whether or not to participate in this research. Given the sensitive nature of the study it is important for you to consider the emotional impact that taking part might have on you.

The main criteria for being included in the study are that you are an adult (between the ages of 18-65 years). Due to the fact that participation will involve completing a number of questionnaires you must be fluent in speaking English.

You would **NOT** be eligible for the study if you have: a diagnosis of a learning disability; a traumatic brain injury; a neuro-degenerative condition (such as dementia); you are experiencing psychotic symptoms, or you are under the influence of drugs/alcohol.

If you are unsure about any of the above criteria, and whether or not you are eligible to take part, you can contact the principal researcher to discuss this further. Your decision to take part in this study will in no way affect the services you receive.
What will happen to the information I provide?

The questionnaires you return are not identifiable; your responses will be completely anonymous.

No personal or identifiable information will be used in the write up of the study. Only the researcher and their supervisor will have access to the information used in the study and it will be stored in a secure location on NHS property for the duration of the study only.

Once returned we will not be able to identify which questionnaires are yours, therefore we will be unable to remove your questionnaires from the study.

What happens after the research is completed?

If you wish to receive information about the outcomes of the study you can contact us (see below) with an address where you can be reached and the researcher will send you information relating to the key findings once the project has finished; we aim to complete the study in summer 2015. Please send your contact details separately to your questionnaires so that your questionnaires can’t be identified.

What if I have any further questions about taking part?

Enquiring further does not mean that you have to agree to take part; it means that you can discuss the research and any questions you have. Our contact details are:

Contact details:

- **Telephone.** You can call the primary researcher on **01324 614 347.** This number will put you through to the Adult Psychology Falkirk reception, and you should then ask to speak to Kirsty Banks. If Kirsty is not available you can leave a message or call back another time. Office hours are 9.00-5.00 PM Monday-Friday.

- **Email.** You can also get in touch by emailing Kirsty Banks at **k.banks@nhs.net.** Please provide a telephone number and indicate when it would be convenient to call you.

- **Address.** Kirsty Banks, Falkirk Community Hospital, Adult Clinical Psychology, Westburn Avenue, Falkirk, FK1 5QE.

If you wish to speak to someone independent, who can talk to you about taking part in psychological research in general (but not specifically about this project), please contact:

**Dr Susan Ramsay (Clinical Psychologist):** Telephone: 01324 624 111.
Appendix 7.

Table 1. Internal Reliability of Scales

<table>
<thead>
<tr>
<th>Scale</th>
<th>No. of Items</th>
<th>Cronbach’s Alpha</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Self-Compassion Scale</td>
<td>26</td>
<td>.934</td>
<td>Excellent</td>
</tr>
<tr>
<td>Impact of Events Scale - Revised Total</td>
<td>22</td>
<td>.944</td>
<td>Excellent</td>
</tr>
<tr>
<td>Impact of Events Scale - Avoidance</td>
<td>8</td>
<td>.896</td>
<td>Good</td>
</tr>
<tr>
<td>Impact of Events Scale - Hyper-arousal</td>
<td>6</td>
<td>.805</td>
<td>Good</td>
</tr>
<tr>
<td>Impact of Events Scale - Intrusion</td>
<td>7</td>
<td>.920</td>
<td>Excellent</td>
</tr>
<tr>
<td>Child Abuse Trauma Scale - Total</td>
<td>38</td>
<td>.940</td>
<td>Excellent</td>
</tr>
<tr>
<td>Child Abuse Trauma Scale - Neglect</td>
<td>14</td>
<td>.946</td>
<td>Excellent</td>
</tr>
<tr>
<td>Child Abuse Trauma Scale - Punish</td>
<td>6</td>
<td>.813</td>
<td>Good</td>
</tr>
<tr>
<td>Child Abuse Trauma Scale - Sex</td>
<td>6</td>
<td>.900</td>
<td>Excellent</td>
</tr>
<tr>
<td>Child Abuse Trauma Scale - Emotional</td>
<td>7</td>
<td>.924</td>
<td>Excellent</td>
</tr>
<tr>
<td>Post-traumatic Growth Inventory</td>
<td>21</td>
<td>.949</td>
<td>Excellent</td>
</tr>
</tbody>
</table>

*Ranges based on George and Mallery (2003)*

Appendix 8.

Table 2. Differences in Mean Score for Main Variables by Gender

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD) Female (n=53)</th>
<th>Mean (SD) Male (n=25)</th>
<th>T</th>
<th>Df</th>
<th>p</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES-R Total</td>
<td>49.38 (20.66)</td>
<td>40.20 (21.75)</td>
<td>-1.800</td>
<td>76</td>
<td>.076</td>
<td>-19.33-.975</td>
</tr>
<tr>
<td>IES-R Avoid</td>
<td>17.57 (8.73)</td>
<td>11.92 (8.26)</td>
<td>-2.711</td>
<td>76</td>
<td>.008*</td>
<td>-9.79- -1.498</td>
</tr>
<tr>
<td>IES-R Hyper-arousal</td>
<td>13.40 (6.24)</td>
<td>13.32 (5.70)</td>
<td>-.052</td>
<td>76</td>
<td>.959</td>
<td>-3.010-2.858</td>
</tr>
<tr>
<td>IES-R Intrusion</td>
<td>18.42 (8.20)</td>
<td>14.96 (10.06)</td>
<td>-1.614</td>
<td>76</td>
<td>.111</td>
<td>-7.719-.809</td>
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<tr>
<td>CATS Total</td>
<td>61.92 (35.01)</td>
<td>48.27 (31.56)</td>
<td>-1.676</td>
<td>76</td>
<td>.098</td>
<td>-29.88- 2.57</td>
</tr>
<tr>
<td>PTGI Total</td>
<td>35.88 (24.22)</td>
<td>29.84 (24.44)</td>
<td>-1.019</td>
<td>74</td>
<td>.312</td>
<td>-17.86- 5.774</td>
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<tr>
<td>SCS Total</td>
<td>55.85 (19.15)</td>
<td>59.92 (22.03)</td>
<td>.845</td>
<td>77</td>
<td>.401</td>
<td>-5.525- 13.673</td>
</tr>
</tbody>
</table>

*Significant p => 0.01
Table 3. Differences in Mean Score for Main Variables by Previous Psychotherapy Input

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD) Previous (n=30)</th>
<th>Mean (SD) No previous (n=42)</th>
<th>T</th>
<th>Df</th>
<th>P</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>IES-R Total</td>
<td>45.17 (18.19)</td>
<td>45.80 (22.91)</td>
<td>-.131</td>
<td>68.49</td>
<td>.896</td>
<td>-10.38 - 9.10</td>
</tr>
<tr>
<td>IES-R Avoid</td>
<td>14.97 (7.04)</td>
<td>15.44 (9.73)</td>
<td>-.237</td>
<td>69</td>
<td>.813</td>
<td>-4.44 - 3.50</td>
</tr>
<tr>
<td>IES-R Hyper-arousal</td>
<td>12.93 (5.86)</td>
<td>13.56 (6.36)</td>
<td>-.430</td>
<td>65.37</td>
<td>.668</td>
<td>-3.54 – 2.28</td>
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<tr>
<td>IES-R Intrusion</td>
<td>17.27 (8.84)</td>
<td>16.80 (9.01)</td>
<td>.215</td>
<td>69</td>
<td>.830</td>
<td>-3.82 – 4.75</td>
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<tr>
<td>CATS Total</td>
<td>52.57 (29.03)</td>
<td>59.05 (35.89)</td>
<td>-.813</td>
<td>69</td>
<td>.419</td>
<td>-22.38 – 9.42</td>
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<tr>
<td>PTGI Total</td>
<td>35.64 (20.87)</td>
<td>35.05 (26.12)</td>
<td>.100</td>
<td>67</td>
<td>.920</td>
<td>-11.22 – 12.41</td>
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<tr>
<td>SCS Total</td>
<td>55.40 (15.30)</td>
<td>59.12 (22.99)</td>
<td>-.824</td>
<td>69.71</td>
<td>.413</td>
<td>-12.72 – 5.29</td>
</tr>
</tbody>
</table>

*significant p= > 0.01

Appendix 9.

Table 4. Two Tailed, Kendall’s Tau Correlations between Main Variables with Age

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Sig.</th>
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<td>.035</td>
<td>.650</td>
</tr>
<tr>
<td>IES-R</td>
<td>-.064</td>
<td>.419</td>
</tr>
<tr>
<td>IES-avoidance</td>
<td>-.098</td>
<td>.218</td>
</tr>
<tr>
<td>IES- hyper-arousal</td>
<td>.024</td>
<td>.762</td>
</tr>
<tr>
<td>IES- intrusion</td>
<td>-.015</td>
<td>.849</td>
</tr>
<tr>
<td>CATS total</td>
<td>-.046</td>
<td>.560</td>
</tr>
<tr>
<td>PTGI</td>
<td>-.071</td>
<td>.372</td>
</tr>
</tbody>
</table>

*significant p= >0.01
### Appendix 10.

**Table 5. Mean Differences between PTSD and no PTSD Group on Main Variables**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean (SD) PTSD (n=56)</th>
<th>Mean (SD) No PTSD (n=23)</th>
<th>T</th>
<th>Df</th>
<th>P</th>
<th>Confidence Interval 95%</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCS Total</td>
<td>51.70 (16.28)</td>
<td>70.57 (22.49)</td>
<td>-3.651</td>
<td>31.90</td>
<td>.001*</td>
<td>-27.88 - 9.86</td>
</tr>
<tr>
<td>CATS Total</td>
<td>66.20 (33.89)</td>
<td>36.26 (25.32)</td>
<td>4.287</td>
<td>54.77</td>
<td>.000*</td>
<td>15.94 - 43.93</td>
</tr>
<tr>
<td>PTGI Total</td>
<td>37.93 (24.47)</td>
<td>23.33 (20.87)</td>
<td>2.416</td>
<td>74</td>
<td>.018</td>
<td>2.56 - 26.63</td>
</tr>
</tbody>
</table>

*significant p > 0.01