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DOCTORATE IN CLINICAL PSYCHOLOGY

MAJOR RESEARCH PROJECT

An exploratory study into the association between Acceptance and Commitment Therapy (ACT) coping styles, Posttraumatic Stress, and Posttraumatic Growth in working age adults who have experienced a traumatic life event

Jade West

Primary Research Supervisor: Dr Neal Marsh
CMHT, Yeovil, Somerset

Secondary Research Supervisor: Dr Anke Karl
School of Psychology, University of Exeter, Exeter, Devon, UK

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Declaration

I certify that all the material in this dissertation that is not my own has been identified, and that no material is included for which a degree has previously been conferred on me.

Signed: Jade West
Part two: Manuscript

An exploratory study into the association between Acceptance and Commitment Therapy (ACT) coping styles, Posttraumatic stress, and Posttraumatic Growth in working age adults who have experienced a traumatic life event

Abstract

Although recent research and theory indicates that posttraumatic stress disorder (PTSD) treatment might benefit from the utilisation of coping styles facilitated by Acceptance and Commitment Therapy (ACT), there has been little research exploring the relationships between these coping styles, posttraumatic cognitions, and PTSD symptomology. Furthermore, the ACT model (Hayes, Strosahl & Wilson, 1999) suggests that ACT-consistent coping styles may be associated with increased positive outcome after trauma, such as posttraumatic growth (PTG). The present study aimed to explore individual differences in ACT coping styles in individuals with a history of psychological trauma. A total of 112 participants completed online self-report measures of PTSD symptom severity, posttraumatic cognitions, ACT coping styles and PTG.

Regression analyses revealed that higher ACT coping styles (specifically experiential acceptance) are associated with lower PTSD symptom severity and lower posttraumatic cognitions. Furthermore, the effect of ACT coping styles on PTSD severity was partially mediated by posttraumatic cognitions, indicating that ACT coping
styles act on PTSD directly and indirectly. There was no evidence that higher ACT coping styles were significantly associated with higher levels of posttraumatic growth (PTG). The findings suggest that effective treatment for trauma survivors could facilitate ACT-consistent coping styles.

*Keywords:* Posttraumatic stress disorder; posttraumatic growth, posttraumatic cognitions; experiential avoidance; experiential acceptance; Acceptance and Commitment Therapy coping styles; regression; moderation.

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1. Introduction

1.1. Background

Posttraumatic stress disorder (PTSD) is characterised by three symptom clusters; re-experiencing, hyperarousal, and avoidance (American Psychiatric Association, 2000). It is estimated that approximately 8% of the population will meet the diagnostic criteria of PTSD at some point in their lifetime (American Psychiatric Association, 2000). However, given that the majority of individuals exposed to traumatic events do not develop PTSD, this suggests that there may be important risk and protective factors which interact to determine the development of the disorder. Individual differences in the coping styles of trauma survivors may have important implications for the development, maintenance, and treatment of PTSD symptoms (Dorfel, Rabe & Karl, 2008). Ehlers and Clark’s (2000) cognitive model of persistent PTSD proposes that maladaptive avoidance-based coping styles maintain PTSD symptomology. Research has shown that experiential avoidance (the deliberate effort to avoid unwanted inner experiences) is one
of the core psychological processes responsible for the development and maintenance of PTSD (Steil & Ehlers, 2000).

Current treatment guidelines recommend trauma-focused cognitive behavior therapy (TF-CBT) and eye movement desensitization and reprocessing (EMDR; Shapiro, et al., 1999) as first-line treatments for PTSD (American Psychiatric Association, 2004; National Institute of Clinical Excellence, 2005). Although exposure therapy is considered to be the gold standard treatment for PTSD, not all trauma survivors benefit from exposure therapy (Thompson, Luoma, and LeJeune, 2013). Studies suggest that this may relate to poor treatment engagement, as reflected in poor homework compliance (Scott & Stradling, 1997), drop-out rates ranging from 20.5 to 41% (Hembree et al., 2003; van Minnen et al., 2002), and not seeking treatment or treatment refusal (e.g., Schottenbauer, Glass, Arnkoff, Tendick, & Gray, 2008). This leaves a large number of people in clinically significant distress.

It could be hypothesised that high trait levels of experiential avoidance, a key symptom and arguably the most important process in the maintenance of PTSD symptoms, is likely to be a significant reason why these individuals are do not access or are unable to engage in or benefit from these treatments. Trauma-focused treatments attempt to target experiential avoidance through the client "re-living" the trauma. However, by the very nature of their diagnoses, individuals with PTSD are often unwilling or unable to "relive" their traumatic memories (Scott & Stradling, 1997).
Bisson (2007) argues that there is a need to develop more tolerable treatments for trauma survivors. Some but not all studies have indicated that trauma survivors with complex PTSD may respond to trauma-focused therapy less optimally than those who do not have these complexities (Hembree, Street, Riggs, & Foa, 2004; Resick, Nishith, & Griffin, 2003). Cloitre, Cohen and Koenen (2006) argue that without preparation through developing affect regulation skills, only 20% of individuals with complex PTSD can participate in exposure treatment. Consequently, it seems that a key objective of effective treatment with these individuals would be to enhance their coping skills and ability to emotionally engage. A potentially helpful psychological approach that has been receiving increased attention in the field of PTSD is Acceptance and Commitment Therapy (ACT; Hayes, Strosahl, & Wilson, 1999).

1.2. Acceptance and Commitment Therapy (ACT)

ACT (Hayes, Strosahl and Wilson, 1999) is one of the most representative therapies of the ‘third wave cognitive behavioural therapies’ (Ruiz, 2010). There are six core psychological processes (see Hayes, Luoma, Bond, Masuda and Lillis, 2006 for a full description of these processes) of ACT which can be divided into two main groupings; acceptance and mindfulness processes, and commitment and behaviour change processes. These processes are targeted in the hope to increase “psychological flexibility”; the ability to act in accordance with one’s meaningful values in life, regardless of unwanted inner experiences (Hayes, Strosahl and Wilson, 1999). Underlying ACT is a behavioural theory of human language and cognition called Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001), which proposes
that experiential avoidance stems, in part, from human verbal behaviour itself (See Hayes 2004 for a full description of RFT).

1.3. ACT as a potentially useful approach for reducing experiential avoidance in PTSD

As with trauma-focused treatments, ACT may break the maintenance cycle of PTSD outlined by Ehlers and Clarkes (2000) by targeting experiential avoidance. Both TF-CBT and ACT use forms of exposure to unwanted inner experiences which may reduce levels of experiential avoidance. However, ACT’s approach to exposure has different treatments aims and uses different methods. In contrast to TF-CBT, ACT does not aim to extinguish, reduce, or alter the form of inner experiences. Instead, ACT targets their function, so that they no longer have a significant effect on one’s behaviour. ACT uses paradoxes, metaphors and willingness exercises with the aim of enabling individuals to learn to be present with their unwanted inner experiences without attempts to avoid, control, or modify them (Hayes, Strosahl and Wilson, 1999). It uses a more skills-based approach to reducing experiential avoidance. Acceptance and mindfulness techniques are used to allow the client to notice and observe unwanted experiences, in the present moment, non-judgementally (Hayes 2004). It is possible that both TF-CBT and ACT may tap into the same processes to reduce experiential avoidance, but the different aims of ACT are made clear to clients.

ACT has been successfully applied to a wide variety of mental health problems, reducing overall experiential avoidance and increasing psychological flexibility (as reviewed in Hayes, Luoma, Bond, Masuda and Lillis, 2006). To date, support for the use
of ACT for PTSD is limited, mainly in the form of a few case studies and open trials. Twohig (2008), and Codd, Twohig, Crosby, and Enno (2011) reported case studies of ACT for PTSD, leading to reduced PTSD symptom severity and increased psychological flexibility. However, the findings from case studies cannot be generalised to wider clinical populations. Furthermore, it is unknown whether the clients retained some skills from previous psychological input that may have complimented the material learnt in ACT. Ultimately, a greater amount of research needs to be carried out in order to clarify the assumptions that ACT could be an effective intervention for PTSD.

1.4. ACT as a potential adjunctive therapy to trauma-focused therapy

As ACT involves willingness and mindfulness exercises as opposed repeatedly describing the details of the traumatic event through reliving exercises, some trauma survivors may experience ACT exercises as less threatening, and may therefore be more likely to try such a therapy, as well as engage with it for longer, or be less likely to dropout. Indeed, Orsillo and Batten (2005) describe a case study of a combat veteran with PTSD who refused exposure therapy, but was able to benefit from ACT. Furthermore, learning different ways of engaging with one’s unwanted inner experiences may increase willingness to have these experiences, and to approach the previously avoided traumatic material.

ACT could be a useful adjunctive therapy to trauma-focused therapy, in order to address the experiential avoidance that prevents this subgroup of trauma survivors from benefiting from the traditional exposure-based treatments. Specifically, ACT could
prepare these individuals with the approach-based coping styles (willingness/acceptance) needed to engage in these emotionally demanding treatments. These ACT coping styles could also be integrated into trauma-focused treatments in order to maintain engagement, or offered to individuals who still have residual symptoms or high experiential avoidance following trauma-focused therapy despite treatment compliance. Recent developments such as Skill Training in Affective and Interpersonal Regulation (STAIR; Cloitre, Cohen & Koenen, 2006) have already begun to demonstrate the value of enhancing tolerance of trauma-focused therapy through building emotional regulation skills (e.g. Cloitre, Koenen, Cohen, & Han, 2002).

An exploratory step forward may be to examine the relationships between particular ACT coping styles, PTSD symptomology, and PTG. Little research has been carried out examining these associations. Before exploring particular ACT coping styles, the review will now introduce PTG and its relationship with PTSD symptomology and general coping styles.

1.5. Posttraumatic Growth (PTG), coping styles, and PTSD symptomology

Some trauma survivors have experienced the phenomenon of posttraumatic growth (PTG) following PTSD; the ability to create positive meaning from the traumatic event (Tedeschi and Calhoun, 1996, 2004). Common examples of PTG include a greater appreciation of life, a changed sense of priorities, and a greater sense of personal strength (Tedeschi and Calhoun, 1996).
Tedeschi and Calhoun’s (1995, 2004) functional-descriptive model of PTG describes PTG as a positive and adaptive outcome of the psychological struggle following a traumatic event. However, studies have found PTG to be related to higher wellbeing and lower distress, higher distress and higher PTSD symptoms, and no relationship (see review by Zoellner & Maercker, 2006). The inconsistent findings may suggest that PTG is related to other factors that either interact with or mediate the effect of PTG on distress. Zoellner and Maercker (2006) have hypothesised that some of these may reflect individual differences in coping styles. As would be expected, avoidant coping is negatively related to the experience of PTG (Aldwin, 1994). Prati and Pietrantoni (2009) found that seeking social support, spirituality, and optimism were related to PTG. Optimism is defined as a self-reported general expectancy of good things to happen relative to bad things (Scheier, Carver, & Bridge, 1994).

The Janus face model of self-perceived PTG (Maercker & Zoellner, 2004) is a two-component model of PTG. In contrast to other theories of PTG, the Janus face model conceptualises PTG as both a coping strategy and an outcome. It proposes that optimism may be related to a dysfunctional, illusory side of PTG, which prevents adaptation and maintains distress; whilst openness to experience may be related to functional, true PTG, which is associated with more successful coping and healthy adjustment (Maercker & Zoellner, 2004). Openness to experience is defined as the tendency to be interested in new situations, new ideas, and new experiences (Costa & McCrae, 1985).
Zoellner, Rabe, Karl and Maercker (2011) randomly assigned forty trauma survivors with PTSD symptoms to TF-CBT or a waiting condition. The TF-CBT proved highly effective in terms of PTSD symptom reduction. However, in contrast to previous findings (e.g., Wagner et al., 2007), there was no treatment effect on overall PTG. However, they did find that there were significant growth increases in the PTG sub-domains “new possibilities” and “personal strength” for the TF-CBT group that were maintained at follow-up. Furthermore, the TF-CBT group showed increases in openness from pre- to post-treatment that were marginally positively related with a higher PTG at post-test. This result may provide evidence for the Janus-face model. It may suggest that therapy may increase openness to experience, which may be related to increases in the adaptive form of PTG. However, the sample size was relatively small and included only motor vehicle accident survivors, and therefore the results may not be generalisable to other trauma types.

A recent prospective and longitudinal study by Dekel, Tsachi Ein-Dor and Solomon (2012) found that initial PTSD predicted subsequent PTG above and beyond PTG stability. Growth being an outcome of distress is in line with Tedeschi and Calhoun’s model (2004). Alternatively, the elevated PTG over time may signify that these individuals have failed to restore well-being and still need to deploy the dysfunctional PTG as a defensive coping strategy, as proposed by Maercker and Zoellner (2004). The authors suggest that PTG may not have a significant value in lessening PTSD symptoms, but may improve other aspects of wellbeing. They propose that
treatments could aim to strengthen the patient's capacity for growth, be it illusionary or real. However, the study did not measure other forms of positive wellbeing.

As pointed out by Maercker and Zoellner (2004), PTG is still a concept not well positioned within the theoretical and conceptual realm. Although the evidence-base of the Janus face model is in its infancy, the review has focused on this model of PTG because its assumptions may help to explain the mixed results regarding the relationship between PTG and PTSD symptomology. Specifically, PTG related to lower distress may reflect the adaptive form of PTG, whilst PTG related to higher distress may reflect dysfunctional PTG. Another reason the review has focused on the Janus face model is because it may be relevant in the understanding of the relationships between approach-based coping styles and adaptive PTG. Openness, similar to the ACT concept of acceptance, may be related to higher willingness to experience unwanted trauma-related inner experiences. I hypothesise that, as with openness, acceptance may also be associated with higher levels of adaptive PTG. I propose that integrating ACT coping styles into trauma-focused treatments may facilitate adaptive PTG.

1.6. ACT coping styles, PTSD symptomology, and PTG

This paper will now discuss the main problematic appraisals outlined by Ehlers and Clark’s (2000) cognitive model of PTSD, the resulting maladaptive coping styles, and how ACT coping styles could break the maintenance cycle of PTSD, leading to lower PTSD symptomology and higher PTG.
1.7. Acceptance

Higher PTSD symptom severity has been associated with lower acceptance of emotional experiences (Tull, Barrett, McMillan, & Roemer, 2007). From an ACT theory perspective, it could be hypothesised that as individuals begin to find unwanted inner experiences less personally threatening through increased acceptance, experiential avoidance would decrease (Follette et al., 2006).

Although ACT does not aim to change the form or frequency of unwanted inner experiences, the reduced experiential avoidance may indirectly lead to re-appraisals. Indeed, Twohig’s (2008) case study found that, following an ACT intervention, a trauma survivor showed decreased PTSD symptom severity, without a decrease on a measure of trauma-related cognitions (appraisals) until the later stages of therapy. This finding may support ACT theory; however, substantially more research is needed in order to test these processes further. An example of a re-appraisal may be seeing the trauma sequelae as necessary for personal growth. This example may also be related to the experience of PTG. According to Ehlers and Clark’s (2000) PTSD model, experiential avoidance and negative appraisals need to be targeted because they prevent change in the trauma memory. Although ACT does not aim to facilitate memory processing, from a theoretical point of view it could be hypothesised that the indirect re-appraisals and the reduction in experiential avoidance may both indirectly contribute to memory processing.

Park et al. (1996) argue that ‘acceptance coping’ is one of the most relevant coping strategies in relation to PTG. Prati and Pietrantoni’s (2009) meta-analytic review
found that acceptance coping was a small but significant predictor of PTG. Zoellner and Maercker (2006) suggest that the ability to accept situations that cannot be altered is crucial for the development of PTG. However, many studies fail to define ‘acceptance-based coping’, and therefore it is unclear as to whether their definitions reflect the ACT concept of acceptance.

Some recent studies have explored the role of mindfulness on PTSD symptomology. Thompson and Waltz (2010) found that mindfulness, specifically the ‘non-judgment of experiences’ element, was negatively correlated with PTSD avoidance symptoms. A similar study by Vujanovic, Youngwirth, Johnson and Zvolensky (2009) found that the ‘accepting with judgment’ subscale of a mindfulness measure was incrementally associated with PTSD symptoms.

Other studies have examined coping responses that appear to reflect the ACT concept of acceptance. As with acceptance, individuals high in openness to experience may be more willing to experience and approach (rather than avoid) unwanted inner experiences. Openness may be related to the adaptive side of PTG (Maercker & Zoellner, 2004). Tedeschi and Calhoun (1996) found a small, but significant cross-sectional correlation between openness and PTG.
In line with acceptance, forgiveness (Orcutt, Pickett and Pope, 2005) and self-compassion (Neff, 2003a)\(^1\) requires a willingness to engage painful thoughts and emotions, and a lower need to avoid painful experiences (Leary, Tate, Adams, Batts Allen, & Hancock, 2007; Neff et al., 2007). Orcutt, Pickett and Pope (2005) found that trauma survivors who were lower in forgiveness and higher in experiential avoidance reported higher PTSD symptoms. Thompson and Waltz (2008) found that PTSD avoidance symptoms showed a significant negative correlation with self-compassion. Their findings suggest that individuals high in self-compassion may engage in less avoidance strategies (Thompson and Waltz, 2008). However, the majority of the studies described in this section used samples of trauma-exposed individuals from the community setting or college students. Therefore, it is not clear whether the findings would generalise to a clinical sample.

1.8. Commitment to values-based action

Other appraisals identified by Ehlers and Clark (2000) appear to be related to the avoidance of valued actions e.g. ‘if I do things I used to enjoy, I will be punished again’. Indeed, individuals with PTSD are often inactive around a number of important values (Wasler and Hayes, 2006) and often experience "clinically significant distress or impairment in social, occupational, or other important areas of functioning" (DSM-IV; American Psychiatric Association, 2000). The avoidance of valued actions further

\(^1\) Neff’s (2003a, 2003b) notion of self-compassion consists of three components: (a) an attitude of kindness and understanding to one’s self; (b) perceiving one’s experiences as part of the larger human condition; (c) being mindfully aware of painful experiences without over-identifying with them.
reinforces problematic appraisals about the trauma making them a ‘permanently damaged person’.

Another core ACT coping style is the commitment to actively live consistently by one’s meaningful values (values-based action), regardless of the presence of unwanted inner experiences. Ehlers and Clark (2000) suggested that an important part of treatment would be to encourage trauma survivors to resume valued and meaningful activities, as this may help to contextualise the trauma memory. Values-based action may also indirectly improve processing of the trauma memory, and indirectly lead to re-appraisals of the trauma sequelae.

Taking meaningful action may be also related to adaptive PTG. Hobfoll et al. (2007) found that participants only experienced positive benefits from PTG when individuals actively translated the meaningful cognitions of PTG into meaningful actions (‘action-focused growth’). An Example of a PTG-consistent valued action may be spending time on newly discovered priorities. Therefore, the ACT coping style of values-based action may also be related to and/or facilitate the meaningful actions element of PTG.

1.9. Summary

The ACT coping styles facilitated in ACT therapy may inform trauma-focused treatments for PTSD in order to create more accessible and effective approaches for trauma survivors, particularly those with high levels of experiential avoidance and
limited emotion regulation skills. The review has explored the potential relationships between ACT coping styles, PTSD symptomology, and PTG. The present study aims to explore these associations in a sample of individuals with a history of psychological trauma.

In line with Ehlers and Clark’s (2000) model, the study also aimed to examine the role of posttraumatic cognitions in mediating the effect of pre-trauma coping styles (such as experiential avoidance and ACT coping styles) on PTSD symptom severity. Self-compassion was also explored as a related coping style to acceptance. Measures of anxiety and depression, and general emotional wellbeing were used to explore secondary outcomes. The variables and hypotheses are displayed in Figure 1. below.
It was hypothesised that:

1. Higher ACT coping styles will be associated with lower PTSD symptom severity and lower posttraumatic cognitions. ACT coping styles will be measured by the

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Figure 1. Model displaying the study’s hypotheses
Acceptance and Action Questionnaire AAQ II; Bond et al., 2007; the Self-Compassion Scale; SCS; Neff, 2003a; and the Valued Living Questionnaire; VLQ; Wilson & Groom, 2002; Wilson & Murrell, 2004). PTSD symptom severity will be measured by the PTSD Checklist; PCL-C; Weathers, Huska, & Keane, 1991) and posttraumatic cognitions will be measured by the Posttraumatic Cognitions Inventory; PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999).

2. ACT coping styles will moderate the relationship between traumatic life events (measured by the The Life Events Checklist; LEC; the National Center for Posttraumatic Stress Disorder and the Clinician Administered PTSD Scale (CAPS)) and PTSD symptom severity.

3. Posttraumatic cognitions will mediate the relationship between ACT coping styles and PTSD symptom severity.

4. Higher ACT coping styles will be associated with higher PTG (measured by the Posttraumatic Growth Inventory; PTGI; Tedeschi & Calhoun, 1996).

5. ACT coping styles will moderate the relationship between traumatic life events and PTG.

Secondary outcomes were measured by the Depression, Anxiety and Stress Scales (DASS-21: Henry & Crawford, 2005), the White Bear Suppression Inventory (WBSI;
A moderator model, adapted from Ehlers and Clark's (2000) Cognitive Model of PTSD, provides a visual representation of the hypothesised roles of ACT-consistent coping styles in relation to PTSD symptomology (Appendix 1). The present study is designed to provide an initial test of this model. As the hypotheses related to PTG are exploratory rather than theory-driven, PTG has not been included in this model.

2. Method

2.1. Design

This was an exploratory, cross-sectional study. It was questionnaire-based, with the aim to examine correlations between variables.

2.2. Participants and recruitment procedure

Participants were recruited from community mental health teams, GP surgeries, and mental health charities throughout Somerset and Devon. The study was advertised in these areas using posters (Appendix 3). Students from the University of Exeter also participated for course credits. They were recruited through the posters and via a school electronic advertising system. All participants opted in to the study by using the online link to the study displayed on the posters. Participants on the patient database for future
research at the University of Exeter were sent participant invitation letters (Appendix 4) and the online link.

112 participants completed the study by using the online link. This took participants to the participant information sheet (Appendix 5), followed by the inclusion and exclusion screening questions (Appendix 7), the consent form (Appendix 6), the study self-report measures (Appendix 8), and finally the debriefing form (Appendix 9). Inclusion criteria for recruitment were that participants were (i) aged between 18-65 years of age, (ii) were English native speakers, to maintain the validity of the questionnaires, (iii) had experienced a traumatic life event (any trauma type) at some point in their lives, and (iv) had consented to participate in the study. The exclusion criteria included (i) neurological illness or head injuries, (ii) current psychosis or schizophrenia, (iii) current suicidal thoughts or plans, (iv) current use of illegal drugs, and (v) currently drinking more than 20 units of alcohol per week. A total of 134 participants accessed the online survey. The additional 22 participants completed less than 20% of the survey, and their data were therefore excluded from the study. Three of these individuals exited the survey after meeting the exclusion criteria, and 19 exited after answering some of the questions. As the all of the survey questions were mandatory, there were no missing data within the sample that completed the survey.

A table of demographic and clinical characteristics of the total sample is shown in Table 1. The majority of the sample were female, and met the DSM-IV criteria for PTSD
according to the PCL-C. The most commonly reported traumatic event was physical assault, followed by sudden death of a close one.

Table 1.

Demographic and clinical characteristics of the sample

<table>
<thead>
<tr>
<th>Age (yr) mean (s.d.)</th>
<th>29.4 (13.1)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Gender n(%)</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>20 (18)</td>
</tr>
<tr>
<td>Female</td>
<td>92 (82)</td>
</tr>
<tr>
<td>PTSD ‘caseness’</td>
<td></td>
</tr>
<tr>
<td>No PTSD</td>
<td>31</td>
</tr>
<tr>
<td>Subsyndromal PTSD</td>
<td>6</td>
</tr>
<tr>
<td>PTSD</td>
<td>75</td>
</tr>
<tr>
<td>Type of trauma</td>
<td></td>
</tr>
<tr>
<td>1. Natural disaster</td>
<td>9</td>
</tr>
<tr>
<td>2. Fire or explosion</td>
<td>21</td>
</tr>
<tr>
<td>3. Transportation accident</td>
<td>53</td>
</tr>
<tr>
<td>4. Serious accident at work, home, or during recreational activity</td>
<td>32</td>
</tr>
<tr>
<td>5. Exposure to toxic substance</td>
<td>4</td>
</tr>
<tr>
<td>6. Physical assault</td>
<td>65</td>
</tr>
<tr>
<td>7. Assault with a weapon</td>
<td>25</td>
</tr>
<tr>
<td>8. Sexual assault</td>
<td>26</td>
</tr>
<tr>
<td>9. Other unwanted or uncomfortable sexual experience</td>
<td>51</td>
</tr>
<tr>
<td>10. Combat or exposure to a war-zone</td>
<td>8</td>
</tr>
<tr>
<td>11. Captivity</td>
<td>8</td>
</tr>
<tr>
<td>12. Life-threatening illness or injury</td>
<td>50</td>
</tr>
<tr>
<td>13. Severe human suffering</td>
<td>28</td>
</tr>
<tr>
<td>14. Sudden, violent death</td>
<td>17</td>
</tr>
<tr>
<td>15. Sudden, unexpected death of someone close to you</td>
<td>60</td>
</tr>
<tr>
<td>16. Serious injury, harm, or death you caused to someone else</td>
<td>1</td>
</tr>
<tr>
<td>17. Any other very stressful event or experience</td>
<td>57</td>
</tr>
</tbody>
</table>

2.3. Ethical approval and considerations

The study was granted ethical approval by the Department of Psychology at the University of Exeter and the Research Ethics Committee in Exeter (Appendix 10 & 11).
All participants were provided with details of support organisations and contacts (before and after the survey), and encouraged to contact their GP or care-coordinator should they experience significant distress as a result of their participation in the study. Participants were also reminded about their right to withdraw from the study at any time.

2.4. Measures

Participants were asked to complete all self-report measures once, and to provide demographic information on age and gender.

The Life Events Checklist (LEC; the National Center for Posttraumatic Stress Disorder (PTSD) and the Clinician Administered PTSD Scale (CAPS). The LEC is a measure of exposure to 17 potentially traumatic events. The LEC is not a diagnostic tool, and is therefore not devised to establish clinical cut-off points. In a clinical sample of combat veterans, the LEC was significantly correlated in the predicted directions with measures of psychological distress, and was strongly associated with PTSD symptoms, with adequate test-retest reliability and good convergent validity (Gray, Litz, Hsu, & Lombardo, 2004).

The PTSD Checklist (PCL-C; Weathers, Huska, & Keane, 1991). The PCL-C is a 17-item self-report measure of PTSD symptoms (in the past month) based on DSM-IV diagnostic criteria (APA, 1994), with a 5-point Likert scale response format. The PCL has been found to be highly correlated (r = .93) with the Clinician Administered PTSD Scale (CAPS; Blake et al., 1990) and has demonstrated robust psychometric properties
with a variety of trauma populations, including high internal consistency (Blanchard, Jones, Buckley, & Fomeris, 1996). Ruggiero, Del Ben, Scotti, and Rabalais (2003) reported Cronbach’s alpha coefficients (.94, .85, .85, and .87 for the PCL total, re-experiencing, avoidance, and hyperarousal scores, respectively) which were indicative of high internal consistency. Their findings also provided support for psychometric properties of the PCL, including internal consistency, test–retest reliability, convergent validity, and discriminant validity. Scores range from 17-85. The PCL-C can be used to identify individuals who are likely to merit a diagnosis of PTSD in two ways. The cut-off score method recommends a total score of 50 or more as meriting a formal diagnosis. The symptom cluster method suggests that individuals are likely candidates for PTSD if they report having been at least moderately bothered by one or more re-experiencing symptoms, three or more avoidance symptoms, and two or more arousal symptoms over the past month (Weathers, Huska, & Keane, 1991). This study will use the latter method.

*The Posttraumatic Growth Inventory* (PTGI; Tedeschi & Calhoun, 1996). The PTGI is a 21-item self-report questionnaire designed to measure the degree of reported positive changes following traumatic experience. There are five dimensions of PTG, as measured by the five subscales: personal strength, new possibilities, relating to others, appreciation of life, and spiritual change. Items are rated on a 6-point Likert scale, ranging from 0 (I did not experience this change as a result of my crisis) to 5 (I experienced this change to a very great degree as a result of my crisis). The PTGI measures positive outcomes, and is therefore not devised to establish clinical cut-off points. The psychometric properties of the PTGI have been well established (Crubaugh
& Resick, 2007). The inventory has acceptable construct validity, internal consistency (.90), and test-retest reliability over a 2-month interval (.71) (Tedeschi & Calhoun, 1996).

*The Posttraumatic Cognitions Inventory* (PTCI; Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). The PTCI is a 36-item self-report measure of trauma-related beliefs. Questions are answered on a 7-point Likert scale ranging from 1 (totally disagree) to 7 (totally agree). Scores from 33 of the items comprise three subscales: negative thoughts of the self; negative thoughts about the world, and self blame. All three of these subscales have excellent internal consistency (Cronbach's alphas total score, $a = .97$; Negative Cognitions About Self, $a = .97$; Negative Cognitions About the World, $a = .88$; Self-Blame, $a = .86$.) and good test – retest reliability the test-retest reliabilities were as follows: total score, $P = .74$; Negative Cognitions About Self, $P = .75$; Negative Cognitions About the World, $P = .89$; and Self-Blame, $P = .89$ (Foa et al., 1999). The mean total score for individuals diagnosed with PTSD is 133. The PTCI is not a diagnostic tool, and is therefore not devised to establish clinical cut-off points.

*Depression, Anxiety and Stress Scales* (DASS-21: Henry & Crawford, 2005). The DASS-21 assesses the presence of depression, anxiety, and stress. It consists of three 7-item self-report scales: depression, anxiety, and stress. The items assess the extent to which each state has been experienced over the past week. Four-point Likert-type scales are used: 0 (did not apply to me at all) to 3 (applied to me very much or most of the time). The DASS-12 is not a categorical measure of clinical diagnoses. Scores of seven or above for depression, six or above for anxiety, and ten or above for stress, range from
moderate to extremely severe (please see scoring table under the DASS-21 questionnaire in Appendix 8 for more information). The DASS-21 has been shown to have excellent psychometric properties in clinical (Brown, Chorpita, Korotitsch, & Barlow, 1997) and non-clinical samples (Clara, Cox, & Enns, 2001). The internal consistencies of the DASS-21 scales were .88 for depression, .82 for anxiety, .90 for stress, and .93 for the total scale (Henry & Crawford, 2005). The DASS-21 was included to control for anxiety and depression in the analysis.

*The White Bear Suppression Inventory* (WBSI; Wegner & Zanakos, 1994). The WBSI is a 15-item self-report measure of thought suppression. Items are rated on a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree). Items are totalled for a unidimensional score. The WBSI is not devised to establish clinical cut-off points. Total scores range from 15 to 75, with higher scores reflecting stronger tendencies to suppress unpleasant thoughts. WBSI is a widely used measure of thought suppression and has exhibited good internal consistency (above .70) and appropriate convergent and discriminant validity (Wegner & Zanakos, 1994). The WBSI would be used to more thoroughly assess experiential avoidance (as the AAQ is a general measure).

*The WHO (Five) Well-Being Index* (1998 version) developed from the World Health Organization-Ten Well-Being Index (Bech, Gudex, & Johansen, 1996; Bech, Olsen, Kjoller, & Rasmussen, 2003). The WHO-5 is a 5-item measure of emotional well-being. The respondent is asked to indicate the degree to which these positive feelings were present in the last two weeks on a 6-point Likert scale, ranging from 0 (not present)
to 5 (constantly present). A higher score represents better emotional well-being. The raw scores are transformed to a score from 0 (worst thinkable well-being) to 100 (best thinkable well-being). A score $\leq$ 50 suggests poor emotional well-being and is a sign for further testing. A score below 28 is indicative for depression (Lowe et al., 2004). In adults, the WHO-5 proved to be a highly sensitive screener for depressive affect (Lowe et al., 2004; Awata et al., 2007). Bonsignore, Barkow, Jessen and Heun (2001) reported a good internal and external validity of the WHO-5 in detecting depression in the elderly population. This measure was included to establish whether higher ACT-consistent coping styles are associated with higher emotional well-being.

*The Acceptance and Action Questionnaire* AAQ II (AAQ-II; Bond et al., 2007). The AAQ II is a 10-item revision of the original AAQ (AAQ; Bond & Bunce, 2003). It is a self-report measure that attempts to assess several of the key features of ACT. Items focus on experiential avoidance, acceptance, and taking action despite experience of aversive private events. Respondents report the extent to which each statement applies to them on a 7-point Likert scale, with higher scores indicating greater experiential avoidance. The AAQ-II has been shown to have good psychometric properties and good convergent, discriminant, and incremental validity (Bond et al., 2007). The mean alpha coefficient was .84, and the 3- and 12-month test-retest reliability was .81 and .79, respectively (Bond et al., 2007).

The AAQ-II is not a diagnostic tool, and is therefore not devised to establish clinical cut-off points. However, Bond et al. (2007) found that AAQ-II scores ranging
from 24 to 28 are associated with the General Health Questionnaire (GHQ-12; Schmitz, Kruse, Heckrath, Alberti, & Tress, 1999), the Beck Depression Inventory (BDI-II; Beck, Steer, & Brown, 1996), and the Symptom Checklist 90-Revised (SCL 90-R; Derogatis, 1983) measures, which indicate psychological distress.

*The Self-Compassion Scale* (SCS; Neff, 2003a). The SCS is a 26-item self-report questionnaire that assesses six different aspects of self-compassion. Responses are given on a 5-point Likert scale from 1 (Almost Never) to 5 (Almost Always). Subscales of self-kindness, common humanity, and mindfulness are scored such that higher scores reflect greater self-compassion. Subscales of self-judgment, isolation, and over-identification are scored such that higher scores reflect lower self-compassion. A total SCS score is calculated by reverse scoring the latter three subscales and summing all six. The SCS is not a diagnostic tool, and is therefore not devised to establish clinical cut-off points. The SCS demonstrates good internal consistency (.92), as well as good test–retest reliability (.93) over a three week interval (Neff, 2003a; Neff, Kirkpatrick, and Rude, 2007). The SCS would be used in this study to assess concepts related to acceptance and mindfulness. Self-compassion was measured as it is a very similar concept to the ACT concept of acceptance.

*The Valued Living Questionnaire* (VLQ; Wilson & Groom, 2002; Wilson & Murrell, 2004). The VLQ is a 20-item, two-part instrument designed to assess both the importance of a particular value, and the degree to which the value is being practiced in an individual’s life. In the first part, participants rate the importance of 10 domains of
living on a 10-point Likert-style scale. These life domains include family and work. The second part of the VLQ asks the client to rate how consistently he or she has lived in accord with the valued behavioural pattern within each domain over the past week. Responses from both “importance” and “consistency” are used to calculate a valued living composite, which helps to quantify the extent to which one is living out particular values in everyday life. The VLQ is not a diagnostic tool, and is therefore not devised to establish clinical cut-off points. The psychometric properties of the VLQ are currently under investigation. Initial psychometric support for the VLQ suggests that valued living can be measured as a possible mechanism of change in ACT (Wilson, Sandoz, Kitchens, & Roberts, 2010). Internal consistency of the Importance Scale was good (.79), for the Consistency Scale was adequate (.58), and for the valued living composite was adequate (.65). However further investigation is necessary to establish validity, particularly in clinical samples (Wilson, Sandoz, Kitchens, & Roberts, 2010).

2.5. Data Analysis

Analytic strategy. Analyses were conducted using the Statistical Package for Social Sciences for Windows (SPSS; version PASW 18). The analyses were conducted in several stages. Initially, basic Pearson correlations between variables were investigated in order to explore relationships between variables. Hierarchical multiple regression analyses were then performed with the variables that showed significant zero order correlations with PTSD symptom severity. The order in which the variables were entered into the model was in accordance with the study’s hypotheses. Exploratory stepwise backward regression analyses were then performed with the variables that showed significant zero order correlations with PTG.
Regression analyses were then conducted to test for moderation. Before doing so, all variables were centred to reduce collinearity. To centre a variable, the mean of that variable was subtracted from each individual variable. Controlled variables were entered in the first step and main effects were entered in the second step. An interaction term between predictor variables and the moderator was calculated and entered in the third step. The methods used were consistent with the procedures recommended for testing moderation (Aiken & West, 1991; Cohen, et al., 2003).

Mediation analysis was conducted following the recommendations of Baron and Kenny (1986). Using a series of multiple regressions it was established in Step 1 that the predictor, ACT coping styles, predicts PTSD severity (path c). Step 2 was to test if the predictor, ACT coping styles, predicts the mediator, PTCI (path a). Step 3 tested that the mediator, PTCI, affects the outcome variable, PTSD severity (path b). Step 4 tested that the mediator PTCI reduces the effect the predictor, ACT coping styles, has on the outcome, PTSD severity (path c’). Steps 3 and 4 were tested in a joint regression. In order to test the significance of the reduction in the direct path obtained by the mediation the Sobel test (Sobel 1982) complemented by a more robust Bootstrap test (Bollen & Stine, 1990; Shrout & Bolger, 2002) was performed.

**Data inspection.** There were no missing data. The assumptions necessary for regression analyses were tested. Specifically, normality of residuals, multicollinearity and the presence of outliers were assessed. All measures were checked for outliers using the SPSS explore function, and box plots were inspected to screen for outliers. Outliers
comprised less than 5% of the data. In order to retain all study participants, outlier scores were winsorized based on the interquartile range of each variable (Tukey’s hinges: Tukey, 1977); i.e., transformed to set data above the 95th percentile to the 95th percentile (Tabachnick & Fidell, 2001). The model remained skewed, possibly due to the nature of the sample (participants ranging from no PTSD to full PTSD), but the prerequisites for normality of the residuals were fulfilled. There were no problems with multicollinearity as indicated by the variance inflation factor (VIF).

3. Results

3.1. Descriptive Statistics

Descriptive statistics were calculated for all variables, including the means and standard deviations of the participants’ scores on the measures. These are presented in Table 1.

Preliminary correlational analyses were carried out to explore the relationships between the predictor variables (PTSD symptom severity and PTG) and the outcome variables. These are presented in Table 2. The zero-order correlations indicated that the predictor variable PTSD symptom severity (PCLC) was significantly correlated with all of the outcome variables. The predictor variable PTG was significantly correlated with AAQ, VLQ, SCS, and WHO.
Table 2.

Means, standard deviations, ranges, and Pearson zero-order correlations between the variables

<table>
<thead>
<tr>
<th>Variables</th>
<th>PCLC</th>
<th>PTGI</th>
<th>LIFE EVENTS</th>
<th>AAQ</th>
<th>VLQ</th>
<th>SCS</th>
<th>PTCI</th>
<th>WBSI</th>
<th>WHO</th>
<th>DASS ANX</th>
<th>DASS DEP</th>
<th>DASS STR</th>
</tr>
</thead>
<tbody>
<tr>
<td>PCLC_TOTALw (PTSD symptom severity) 17-77</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PTGI_TOTALw (posttraumatic growth) 0-105</td>
<td>-.021</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>LIFE_EVENT_TOTw (life events) 0-17</td>
<td>.316**</td>
<td>.043</td>
<td>1</td>
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<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>AAQ_TOTw (acceptance and action) 10-70</td>
<td>-.806**</td>
<td>.216*</td>
<td>-.229*</td>
<td>1</td>
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<td></td>
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<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>VLQw (valued-based action) 0-90</td>
<td>.295**</td>
<td>-.227*</td>
<td>.350**</td>
<td>-.323**</td>
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</tr>
<tr>
<td>Total_SCSw (self-compassion) 0-5</td>
<td>-.573**</td>
<td>.235*</td>
<td>-.243**</td>
<td>.696**</td>
<td>-.362**</td>
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<td></td>
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<tr>
<td>PTCI_TOTALw (posttraumatic cognitions) 33-231</td>
<td>.828**</td>
<td>-.082</td>
<td>.236*</td>
<td>-.881**</td>
<td>.276**</td>
<td>-.660**</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>WBSI_TOTw (thought suppression) 15-75</td>
<td>.665**</td>
<td>.036</td>
<td>.365**</td>
<td>-.768**</td>
<td>.312**</td>
<td>-.591**</td>
<td>.721**</td>
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<td></td>
</tr>
<tr>
<td>WHO_TOTw (emotional wellbeing) 0-100</td>
<td>-.552**</td>
<td>.336**</td>
<td>-.305**</td>
<td>.585**</td>
<td>-.448**</td>
<td>.435**</td>
<td>-.523**</td>
<td>-.460**</td>
<td>1</td>
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<td></td>
</tr>
<tr>
<td>DASS_ANXw (anxiety score) 0-21</td>
<td>.692**</td>
<td>.027</td>
<td>.119</td>
<td>-.618**</td>
<td>.183</td>
<td>-.512**</td>
<td>.636**</td>
<td>.494**</td>
<td>-.244**</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>DASS_DEPw (depression score) 0-21</td>
<td>.609**</td>
<td>-.031</td>
<td>.200*</td>
<td>-.649**</td>
<td>.263**</td>
<td>-.484**</td>
<td>.689**</td>
<td>.633**</td>
<td>-.424**</td>
<td>.661**</td>
<td>1</td>
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</tr>
<tr>
<td>DASS_STRw (stress score) 0-21</td>
<td>.641**</td>
<td>-.010</td>
<td>.145</td>
<td>-.610**</td>
<td>.188**</td>
<td>-.512**</td>
<td>.583**</td>
<td>.534**</td>
<td>-.283**</td>
<td>.832**</td>
<td>.695**</td>
<td>1</td>
</tr>
</tbody>
</table>

Mean: 46.34  40.00  4.58  41.25  18.75  69.10  3.39  53.81  41.21  13.44  15.14  17.83
Standard Deviation: 18.23  24.74  2.88  13.56  11.85  19.22  1.41  11.28  22.73  11.31  13.00  11.97

*. Correlation is significant at the 0.05 level (2-tailed).
**. Correlation is significant at the 0.01 level (2-tailed).
3.2. Multiple Regression Analyses

Multiple regression analyses were conducted to identify the contribution of selected predictor variables on PTSD symptom severity and PTG.

Hypothesis 1: Higher ACT coping styles will be associated with lower PTSD symptom severity and lower posttraumatic cognitions

For the PTSD symptom severity total score, the following predictor blocks were entered into a hierarchical regression: (1) life events (LEQ), (2) ACT coping styles (AAQ, VLQ, and SCS), and (3) cognitive symptoms (PTCI and WBSI). ACT coping styles were entered after life events because it was hypothesised that PTSD symptomology would be predicted by trauma severity (life events) and ACT coping styles. Posttraumatic cognitions are well established as PTSD predictors. Therefore PTCI were controlled for in order to examine whether ACT coping styles would make an independent prediction.

The analyses showed that the overall final model for PTSD explained a significant proportion (78%) of the variance ($F(10, 101) = 37.80, p < .01$) (see Table 3.). Life events accounted for only 10% of the variance ($F(1, 110) = 12.20, p = .01$). ACT coping styles explained a significant proportion (66%) of the variance in PTSD, ($F(4, 107) = 53.66, p < .01$). The cognitive symptom measures only contributed a further 6% of the variance ($F(6, 105) = 46.52, p < .00$). Table A.3. shows the individual predictors that contributed
significantly to explain PTSD severity in the final model; life events, AAQ, and PTCI. The AAQ measure made the most significant contribution to the final model.

Similarly, regression analyses were carried out to examine how ACT coping styles are associated with PTCI. The following predictor blocks were entered into a hierarchical regression: (1) life events (LEQ), and (2) ACT coping styles (AAQ, VLQ, and SCS). The analyses showed that the overall model for PTCI explained a significant proportion (78%) of the variance ($F(4, 107) = 95.76, p < .01$) (see Table 4.). Life events accounted for only 5% of the variance ($F(1, 110) = 6.50, p = .01$). ACT coping styles contributed a further 73% of the variance. Again, the AAQ made the most significant contribution to the final model.
Table 3.

Results of hierarchical regression for PTSD symptom severity

<table>
<thead>
<tr>
<th>Model</th>
<th>Outcome variable</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1: Life events</td>
<td>LIFE EVENT</td>
<td>.10</td>
<td>.10</td>
<td>2.00</td>
<td>.57</td>
<td>.31</td>
<td>3.49</td>
<td>&lt;.001</td>
</tr>
<tr>
<td>Step 2: ACT coping styles</td>
<td>LIFE EVENT</td>
<td>.66</td>
<td>.56</td>
<td>.88</td>
<td>.38</td>
<td>.14</td>
<td>2.32</td>
<td>.02</td>
</tr>
<tr>
<td></td>
<td>AAQ</td>
<td>-1.04</td>
<td>.10</td>
<td>-.77</td>
<td>-9.89</td>
<td>&lt;.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>VLQ</td>
<td>-.00</td>
<td>.09</td>
<td>-.00</td>
<td>-.06</td>
<td>.94</td>
<td></td>
<td></td>
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<tr>
<td></td>
<td>SCS</td>
<td>-.00</td>
<td>.07</td>
<td>-.01</td>
<td>.98</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Step 3: Cognitive symptoms</td>
<td>LIFE EVENT</td>
<td>.72</td>
<td>.05</td>
<td>.75</td>
<td>.36</td>
<td>.11</td>
<td>2.06</td>
<td>.04</td>
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<tr>
<td></td>
<td>AAQ</td>
<td>-.46</td>
<td>.16</td>
<td>-.34</td>
<td>-2.79</td>
<td>&lt;.001</td>
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<tr>
<td></td>
<td>VLQ</td>
<td>.02</td>
<td>.08</td>
<td>.01</td>
<td>.24</td>
<td>.80</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>SCS</td>
<td>.04</td>
<td>.07</td>
<td>.04</td>
<td>.65</td>
<td>.51</td>
<td></td>
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</tr>
<tr>
<td></td>
<td>PTCI</td>
<td>6.70</td>
<td>1.41</td>
<td>.52</td>
<td>4.72</td>
<td>&lt;.001</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>WBSI</td>
<td>.01</td>
<td>.13</td>
<td>.00</td>
<td>.08</td>
<td>.93</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
### Results of hierarchical regression for PTCI

<table>
<thead>
<tr>
<th>Regression blocks</th>
<th>Individual predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model</td>
<td>Outcome variable</td>
</tr>
<tr>
<td>Step 1</td>
<td>LIFE EVENTS</td>
</tr>
<tr>
<td>Step 2</td>
<td>LIFE EVENTS</td>
</tr>
<tr>
<td></td>
<td>AAQ</td>
</tr>
<tr>
<td></td>
<td>VLQ</td>
</tr>
<tr>
<td></td>
<td>SCS</td>
</tr>
</tbody>
</table>
Hypothesis 2: ACT coping styles will moderate the relationship between traumatic life events and PTSD symptom severity

**Moderation analyses.** Regression analyses explored life events and AAQ as the predictors and PTSD as the outcome. Results revealed an overall significant model of 66% \( F(3, 108) = 71.86, p < .01 \) (see Table 5.). Results suggest that only AAQ significantly predicted PTSD severity. The interaction (life events x AAQ) did not contribute significant amounts of variance. Therefore hypothesis 2 cannot be confirmed.

Table 5.
Moderation analysis of life events and AAQ on PTSD symptom severity

<table>
<thead>
<tr>
<th>Regression blocks</th>
<th>Individual predictors</th>
</tr>
</thead>
<tbody>
<tr>
<td>( R^2 )</td>
<td>( \Delta R^2 )</td>
</tr>
<tr>
<td>---</td>
<td>---</td>
</tr>
<tr>
<td>Outcome variable</td>
<td>.66</td>
</tr>
<tr>
<td>Life events</td>
<td>2.38</td>
</tr>
<tr>
<td>AAQ</td>
<td>-14.13</td>
</tr>
<tr>
<td>Life events x AAQ</td>
<td>.08</td>
</tr>
</tbody>
</table>

Regression analyses were carried out to examine whether ACT coping styles moderate the relationship between traumatic life events and PTCI. The analysis explored life events and AAQ as the predictors and PTCI as the outcome. Results revealed an overall significant model of 77% \( F(3, 108) = 125.23, p < .01 \). (see Table 6.). Results suggest that only AAQ significantly predicted PTCI. The interaction (life events x AAQ) did not contribute significant amounts of variance.
Table 6.

Moderation analysis of life events and AAQ on PTCI

<table>
<thead>
<tr>
<th>Regression blocks</th>
<th>Outcome variable</th>
<th>R²</th>
<th>ΔR²</th>
<th>B</th>
<th>SE B</th>
<th>β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td></td>
<td>Life events</td>
<td>0.03</td>
<td>0.17</td>
<td>0.02</td>
<td>0.22</td>
<td>0.81</td>
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</tr>
<tr>
<td></td>
<td>AAQ</td>
<td>-1.24</td>
<td>0.11</td>
<td>-0.87</td>
<td>-11.04</td>
<td>&lt;0.001</td>
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<tr>
<td></td>
<td>Life events x AAQ</td>
<td>9.49</td>
<td>0.001</td>
<td>0.00</td>
<td>0.06</td>
<td>0.94</td>
<td></td>
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</tbody>
</table>
Hypothesis 3: Posttraumatic cognitions will mediate the relationship between ACT coping styles and PTSD symptom severity

**Mediation analyses.** As the results suggest that only AAQ significantly predicted PTCI but with no moderation effects, mediation analyses were used to explore the role of posttraumatic cognitions in mediating the relationship between pre-trauma coping styles (ACT coping styles) and PTSD symptom severity (In line with Ehlers & Clark’s 2000 model).

Figure 2. shows that mediation analyses revealed a significant partial mediation effect for PTCI. Although the standardized regression coefficient between ACT skills and PTSD severity decreased substantially when controlling for PTCI (total indirect effect $\beta = -.63$; Sobel test $z = -4.72$, $p < .001$; Bootstrap 95% CI [-.83, -.39]), ACT skills still significantly predict PTSD severity ($\beta = -.34$, 95% CI [-.75, -.17]).

*Figure 2.* Standardized regression coefficients for the relationship between ACT coping styles and PTSD severity as mediated by PTCI.
Hypothesis 4: Higher ACT coping styles will be associated with higher PTG

Multiple regression analyses were conducted to further examine the contribution of predictor variables (AAQ, VLQ, SCS, and WHO) on PTG. As the theoretical background is not as clear/strong for PTG, an exploratory analysis using the stepwise backward method was used. The following predictor blocks were entered; (1) ACT coping styles (AAQ, VLQ, and SCS), (2) wellbeing (WHO).

The analyses showed that the overall model for PTG explained a small but significant proportion (11%) of the variance \( (F(1, 110) = 14.02, p < .01) \) (see Table 7.). The analysis suggests that only WHO contributes to PTG \( (F(1, 110) = 3.96, p < .01) \).

The results suggest that 89% of the PTG model must be explained by other variables. Furthermore, there was no main relationship between the main predictor (life events) and PTG. Therefore hypothesis 5 (ACT coping styles will moderate the relationship between trauma exposure and PTG) could not be explored further.
Table 7.

Results of stepwise backward regression for PTG

<table>
<thead>
<tr>
<th>Model</th>
<th>Regression blocks</th>
<th>Outcome variable</th>
<th>$R^2$</th>
<th>$\Delta R^2$</th>
<th>B</th>
<th>SE B</th>
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3.3. Consideration of Effect Size and Statistical Power

Effect size for regressions were determined from $R^2$ of each final model (determined using software G*Power 3.0; Faul et al., 2007) and ranged from $f^2 = 0.13$ (for the PTG regression) to $f^2 = 3.42$ (for the PTCI hierarchical regression). Taking into consideration a sample size of $N=112$ and the respective number of predictors the achieved statistical power ($1-\beta$) in this ranged from .89 to 1 in this study, indicating that this study had obtained sufficient statistical power.

4. Discussion

The study aimed to explore individual differences in ACT-consistent coping styles in individuals with a history of psychological trauma, and the degree to which they predict PTSD symptom severity or moderate the associations between trauma exposure and PTSD, or trauma exposure and a known predictor of PTSD, posttraumatic cognitions. In addition the study aimed to investigate the contribution of ACT coping styles to positive outcome after trauma, the phenomenon described as posttraumatic growth. In summary, the findings support the hypothesis that higher ACT coping styles are associated with lower PTSD symptom severity and lower posttraumatic cognitions. No evidence for moderation effects of ACT coping styles on the association between trauma exposure and PTSD symptom severity or posttraumatic cognitions were found. A mediation analysis revealed that the effect of ACT coping styles on PTSD severity is partially mediated by posttraumatic cognitions, indicating that ACT coping styles act on PTSD directly and indirectly. Whereas ACT coping styles were associated with PTSD or related maladaptive cognitions, there was no evidence that higher ACT coping styles
were significantly associated with higher levels of posttraumatic growth (PTG). Nor was there an association between trauma exposure and PTG, preventing the proposed moderation analyses.

The findings support Ehler and Clark’s (2000) cognitive model of PTSD, which proposes that those with high levels of experiential avoidance (and therefore lower levels of experiential acceptance, as measured by the AAQ) and higher levels of posttraumatic cognitions, are more likely to experience higher levels of PTSD symptomology. The results are in line with previous studies (Tull, Gratz, Salters, and Roemer, 2004; Steil and Ehlers, 2000; Wegner and Schneider, 2003).

Ehler and Clark’s (2000) model proposes that experiential avoidance maintains PTSD symptomology by preventing change in the negative appraisals and trauma memory (Ehlers and Clark, 2000). The findings of this study suggest that increasing ACT coping styles could break this maintenance cycle, both directly by reducing experiential avoidance, and indirectly by reducing posttraumatic cognitions. This may have important implications for treatment. The findings highlight the potential benefit of trauma interventions to facilitate ACT-consistent coping styles, specifically those measured by the AAQ (‘experiential acceptance’, ‘taking action despite experience of aversive private events’, and overall ‘psychological flexibility’).

The findings may support the theory which underlies ACT; Relational Frame Theory (RFT; Hayes, Barnes-Holmes, & Roche, 2001). The participants with higher
levels of ACT coping styles have lower PTSD symptomology. According to RFT, these individuals would still experience unwanted thoughts, feelings, and memories, but they may have learnt to let go of the struggle for control which is inherent in human language. It is unclear as to how these particular individuals developed higher ACT coping styles.

The findings may also contribute to the evidence-base for acceptance-based approaches for trauma survivors. Acceptance and Commitment Therapy (Hayes, Strosahl, and Wilson, 1999) has been successfully applied to a wide variety of mental health problems, reducing overall experiential avoidance and increasing psychological flexibility (as reviewed in Hayes, Luoma, Bond, Masuda & Lillis, 2006). Walser and Hayes (2006) point out that ACT is most useful when applied to individuals who are assessed as being emotionally avoidant, have chronic conditions, or who have multiple treatment failures. Its focus on reducing experiential avoidance through specific processes that are not directly targeted by traditional TF-CBT, suggests that ACT may be a well suited treatment of PTSD for the high percentage of trauma survivors who do not benefit sufficiently from traditional TF-CBT (Walser & Hayes, 2006). Furthermore, psychological assessment of trauma survivors could use ACT related measures in order to assess for levels of psychological flexibility, in addition to assessing the risk factors for PTSD. This could facilitate treatment planning.

The study’s findings suggest that higher ACT coping styles may be related to more adaptive cognitive appraisals of the trauma sequelae, which in turn lowers PTSD symptomology. ACT interventions do not aim to change the form or frequency of negative appraisals (posttraumatic cognitions); however, its alternative methods of
enhancing acceptance and therefore reducing experiential avoidance may indirectly lead to re-appraisals. An example of a re-appraisal may be a move from catastrophic interpretations of the trauma sequelae (e.g. ‘I’m going mad’), to more adaptive interpretations (e.g. seeing the trauma sequelae as a normal part of the recovery process from trauma). More treatment research is needed to explore the direction of these processes. Twohig (2008) found that, following an ACT intervention, a trauma survivor showed significant reductions in PTSD symptom severity, without a decrease on a measure of trauma-related cognitions until the later stages of therapy. This may suggest that reducing posttraumatic cognitions (targeted by TF-CBT) may not be necessary for reducing PTSD symptomology, but they may decrease as an indirect result from enhanced acceptance. However, substantially more research is needed in order to test these assumptions.

The ACT-consistent coping style of values-based action did not make a significant contribution to PTSD. Research suggests that those with high levels of PTSD tend to avoid valued activities. It was predicted that engaging in behaviour which is consistent with important and meaningful life values (despite unpleasant thoughts and feelings) would be associated with lower PTSD symptom severity. It may be that, individuals with higher levels of experiential acceptance (and thus lower PTSD symptoms) may be more content with not consistently engaging in valued-behaviour. Or it may be that values-based action is not part of the explanatory mechanism of PTSD. However, the AAQ, which did predict lower PTSD symptom severity, includes some items about taking action despite unpleasant thoughts and feelings. More research is
needed to explore the relationship of values-based action with PTSD and PTG. The VLQ is still a relatively new measure and research involving this measure remains in its infancy.

The self-compassion measure (Neff, 2003a) did not make a significant contribution to PTSD. In line with acceptance, self-compassion is associated with a greater willingness to engage painful thoughts and emotions, and a lower need to avoid painful experiences (Leary, Tate, Adams, Batts Allen, & Hancock, 2007; Neff et al., 2007). As self-compassion is a similar concept to acceptance, it was predicted that higher self-compassion would be associated with lower PTSD symptom severity. The failure to find a significant relationship was therefore surprising, and conflicts with previous findings (Thompson and Waltz, 2008). It may be that self-compassion, although similar to the concept of acceptance, may have slightly distinct features. For example, self-kindness may be a slightly different type of coping to willingness.

It was hypothesised that higher ACT coping styles would be associated with higher PTG. The results demonstrated that ACT coping styles did not contribute a significant amount of variance to PTG. One possible explanation for this outcome could be that ACT coping styles and PTG may reflect different processes. PTG is understood to be the ability to create positive meaning from the traumatic event (Tedeschi and Calhoun, 1996, 2004). This involves positive appraisals of the posttraumatic sequelae. Acceptance is related to willingness and openness to experience the unpleasant thoughts, feelings and symptoms associated with the traumatic event. Therefore, individuals with
high levels of acceptance may experience lower negative appraisals (posttraumatic
cognitions), but do not necessarily experience higher levels of positive appraisals
following trauma (PTG).

It is possible that the PTGI measure in this study may have tapped into the
‘optimistic’ type of PTG, rather than the ‘openness’ type. Optimism is thought to be
related to a dysfunctional, illusory side of PTG, which prevents adaptation. Whilst
openness to experience (Costa and McCrae, 1985), a similar concept to experiential
acceptance, is thought to be related to functional, true PTG, which leads to healthy
adjustment and wellbeing (the Janus face model of self-perceived PTG; Maercker &
Zoellner, 2004). Optimism may be a form of experiential avoidance. The model’s
assumptions may help to explain why ACT coping styles did not significantly contribute
to PTG. Indeed, previous research has found that positive reappraisal coping and
optimism are related to PTG (Prati and Pietrantoni, 2009).

The findings also showed that only general wellbeing (measured by the WHO)
contributed to PTG. This finding may suggest that those with higher levels of general
wellbeing may experience higher levels of PTG following a trauma. Equally, it may
mean that those with higher levels of PTG following a trauma may subsequently
experience higher levels of wellbeing. Studies have found PTG to be related to higher
wellbeing and lower distress, higher distress and PTSD symptoms, and no relationship
(see review by Zoellner and Maercker, 2006). A possible explanation for this conflicting
pattern of results is the suggestion of a curvilinear association between growth and

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distress/psychopathology (Lechner, Antoni & Carver, 2006). Some trauma survivors may simply fail to perceive the event as a crisis, and would therefore have little reason for either distress or growth. A second group may experience mostly distress and less growth, and a third group may experience mostly growth and less distress. The participants in this study who scored highly on PTG and wellbeing measures may reflect those of the third group.

PTG remains a complex phenomenon which requires further research. Future ACT treatment studies may examine possible changes in PTG levels in relation to ACT coping styles, PTSD symptom severity, and posttraumatic cognitions.

4.1. Limitations and recommendations for future research

There are several limitations of this study. The sample consisted of trauma survivors, recruited from clinical settings and from the community, a large proportion of which were students between the ages of 18-25. This socio-demographic limitation may mean that the results may not be truly applicable to the general population. However, evidence suggests that the traumatic experiences of college students are comparable to those of people in the general population (Vrana & Lauterbach, 1994). Nonetheless, it would be desirable to replicate these results with a more diverse sample.

The study’s recruitment plan sought to obtain a range of varying degrees of PTSD symptomology in relation to varying degrees of ACT coping styles. Of the 112 trauma survivors, 31 had no PTSD, 6 had subsyndromal PTSD, and 75 had full PTSD. It may be
possible that the sample is slightly biased for those with lower PTSD symptoms and higher ACT skills. These individuals may be higher functioning than a clinical sample, and may therefore possess more adaptive coping skills than a clinical sample seeking treatment. However, sample variance was accounted for in the analysis. Although the model remained skewed, possibly due to the nature of the sample (participants ranging from no PTSD to full PTSD), the prerequisites for normality of the residuals were checked and fulfilled. Furthermore, variable numbers were reduced by only exploring total scores rather than the individual subscales as originally planned, and the post-hoc power calculations that were performed based on the sample size and the number of predictors indicated that this study had obtained sufficient statistical power. Nevertheless, future research may seek to replicate these findings with an exclusively clinical sample.

Furthermore, the study examined individuals who experienced a variety of traumatic life events. Therefore, there remains insufficient evidence to determine whether findings are applicable to all those with PTSD or whether they are applicable only to those with particular trauma types. Future studies may focus on a specific type of trauma, so that the results could be more easily generalised to that particular trauma type.

Background sample data was limited. The survey did not gather information about socioeconomic status, how many participants had actually received PTSD treatment or medication, how many were in active treatment, or the time since their traumatic life event. We were cautious not to ask participants too many questions, as there were
already ten questionnaires to complete within the survey. Nevertheless, such factors may introduce a reporting bias in the study. Furthermore, including a number of variables represented by many measures can reduce the statistical power of overall findings. However, in this study, only the total scores were explored, and the post-hoc power calculations that were performed based on the sample size and the number of predictors indicated that this study had obtained sufficient statistical power.

The cross-sectional nature of this study design precludes any conclusions about cause-effect relationships. For example, it is not possible to identify whether the development of PTSD symptoms leads to lower ACT coping styles, or whether pre-existing ACT coping styles act as a protective factor by preventing the development of PTSD symptoms. Longitudinal studies are needed to identify causal influences. ACT treatment studies could also examine changes in these relationships during the course of treatment. Although findings from case studies are encouraging (Codd et al., 2011; Orsillo & Batten, 2005; Twohig, 2008), more research is needed to explore the efficacy of ACT for PTSD, with larger sample sizes, prospective designs, and comparisons with control conditions and/or TF-CBT interventions.

The participants were self-selecting, which may have led to potential bias. It is possible that those experiencing very high levels of experiential avoidance did not opt into the study. However, the study was able to recruit participants who met the criteria for PTSD (according to the PCL-C). Finally, the results are based solely on self-report measures. Future research may test the hypotheses using more comprehensive data.
collection methods, such as clinical interviews to assess for past history of psychopathology. This would facilitate the generalisability of the findings to those with PTSD diagnoses.

4.2. Conclusion

The results of this study are a potentially useful addition to the growing body of literature examining coping styles in relation to PTSD. The outcomes are in line with previous trauma studies (Tull, Gratz, Salters, & Roemer, 2004; Steil & Ehlers, 2000; Wegner & Schneider, 2003), ACT studies (see review by Hayes, Luoma, Bond, Masuda & Lillis, 2006) and theoretical models (e.g. Ehlers & Clark, 2000) which propose that reducing experiential avoidance will reduce PTSD symptom severity. The findings suggest that effective treatment for trauma survivors could facilitate ACT coping styles, which could reduce PTSD symptom severity, both directly through the reduction of experiential avoidance, and indirectly through the reduction of posttraumatic cognitions.
References


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Wilson, K. G., & Groom, J. (2002). *The Valued Living Questionnaire*. Available from the first author at Department of Psychology, University of Mississippi, University, MS.

(Eds.), *Mindfulness and acceptance: Expanding the cognitive-behavioral tradition* (pp. 120–151). New York: Guilford Press.


Appendices
Appendix 1


- **Characteristics of Trauma/ Sequelae**
  - Prior Experiences/ Beliefs/ Coping
  - State of Individual

- **Nature of Trauma Memory**
  - Intrusions
  - Aroused Symptoms
  - Strong Emotions

- **Current Threat**
- **Negative Appraisal of Trauma and/or its Sequelae**
- **Strategies Intended to Control Threat/ Symptoms**

**Arrows indicate the following relationships:**
- Leads to
- Influences
- Prevents change in

**Hypothesised Extension**

**Long term:**
- Leads to Psychological *Inflexibility*.
- *Risk factor* for the development and/or maintenance of PTSD and increased symptom severity.

**Moderators:**
Individual differences in coping styles to symptoms/distress

- **Avoidance-based responses**
- **Approach-based responses**

**ACT-consistent coping styles:**
Acceptance of trauma and its sequelae 
& Values-based action

**Long term:**
- Lead to more Psychological flexibility (reduces EA).
- This reduces distress and perceived threat (without changing the form or frequency of trauma-related cognitions/appraisals).
- This may improve trauma processing.
- Which may *indirectly* lead to more adaptive re-appraisals.
- **Protective factors** against the development and/or maintenance PTSD and increased symptom severity.
INTRODUCTION

*Behaviour Research and Therapy* encompasses all of what is commonly referred to as cognitive behaviour therapy (CBT). The focus is on the following: theoretical and experimental analyses of psychopathological processes with direct implications for prevention and treatment; the development and evaluation of empirically-supported interventions; predictors, moderators and mechanisms of behaviour change; and dissemination and implementation of evidence-based treatments to general clinical practice. In addition to traditional clinical disorders, the scope of the journal also includes behavioural medicine. The journal will not consider manuscripts dealing primarily with measurement, psychometric analyses, and personality assessment.

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Most people (50-90%) will experience a very stressful or traumatic event at some point in their lifetime. Many people recover over time, but some people experience persistent bad memories, stress or nightmares.

Can you help us with our research?
We are conducting a new study investigating how people cope after a traumatic event. The study might help us to provide better treatments and support services for people.

What’s involved?
All you would need to do is complete a questionnaire.
To thank you, you can enter into a prize draw to win one of four shopping vouchers worth £25.00.

If you are aged between 18-65, you can get more information or take part in this study by using the following link: http://survey.ex.ac.uk/copingwithtrauma
Or by scanning the barcode with your iphone

Please contact the research team on 01392 725 271 or email jdw210@exeter.ac.uk if you would like more information.
Please seek advice from your GP (or your care-coordinator) if you have any concerns about posttraumatic Stress Disorder (PTSD).

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Participant Invitation Letter

Dear Sir/Madam

Have you ever experienced a traumatic life event? Do you have on-going difficulties coming to terms with this experience such as persistent bad memories, stress or nightmares?

We are conducting an interesting new study at the University of Exeter examining individual differences in the way people cope after experiencing a stressful event (sometimes referred to as a trauma or traumatic experience). This may help us to provide better treatments and support services for people who are experiencing ongoing difficulties after a trauma.

Most people (50-90%) will experience a traumatic event at some point in their lifetime. Examples of traumatic events include car accidents, experience of war, or being the victim of a crime or abuse. Many people recover over time, but some people experience ongoing difficulties that do not go away by themselves or even get worse as time goes on.

The study will involve completing a questionnaire which will take approximately 25-45 minutes. To thank you completing the questionnaire, you will also be entered into a prize draw to win one of four shopping vouchers worth £25.00!

If you are interested in taking part in this new study, all you need to do is:

1. **Complete the questionnaire online**
   On your computer at home by using the link: *********

   Or

2. **Complete the paper questionnaire attached**
   Then post it back to us in the stamped address envelope (enclosed).

The information sheet providing further details of the study can be found enclosed and on the online link. If you would like more information please contact us by phone 01392 725271 or email jdw210@exeter.ac.uk

Jade West, Trainee Clinical Psychologist, University of Exeter
Dr Neal Marsh, Consultant Clinical Psychologist, Somerset Partnership
Dr Anke Karl, Clinical Psychologist, University of Exeter
Jade West– PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles (Supervised by Dr Neal Marsh & Dr Anke Karl) Version 2 21/06/12

Appendix 5

Participant Information Sheet (23.01.12)

Study title: The effects of traumatic experiences and how people cope.

Introduction
My name is Jade West and I am a Trainee Clinical Psychologist. I am doing research to understand the ways that people cope when they have experienced a stressful or traumatic event.

I would like to invite you to take part in this study. Before you decide, it is important for you to understand why the study is being done and what it will involve. Please take time to read the following information carefully and discuss it with others if you wish. If you have any questions or would like more information after reading this, please feel free to contact us (contact details are given below).

Thank you for taking the time to read this.

What is the purpose of the study?
We know that experiencing a traumatic event can have a huge impact on people’s lives. We also know that people have their own individual ways of coping. This study aims to explore individual differences in the way people cope after experiencing a traumatic event. It is hoped that this research may lead to a better understanding of particular coping styles than help people recover from trauma. This may help us to provide better treatments and support services for people who are experiencing ongoing difficulties after a trauma.

Who can take part?
We are interested in people who have experienced any type of stressful or traumatic experience such as a motor vehicle accident, an attack, abuse, or combat-related trauma, or anyone who has been told they have post-traumatic stress disorder (PTSD). This includes people who have recovered from PTSD. We are hoping to recruit approximately 120 participants for this study.

Do I have to take part?
It is up to you to decide whether or not to take part. If you do decide to take part you will be given this information sheet to keep and be asked to complete the attached consent form. If you decide to take part you are still free to withdraw at any time and without giving a reason. The study also has strict criteria about who is able to participate, and therefore there are occasions when some participants may need to be withdrawn from the study.

What will I have to do if I take part?
Taking part in this study involves completing a questionnaire by ticking the answers that apply to you (you would not have to write about your experiences). There are 189 tick-box questions, which will take approximately 25-45 minutes to complete.

You can complete the questionnaire:
What are the possible benefits of taking part?
It is hoped that this research may help us to understanding more about the psychological consequences of traumatic events, and what kinds of coping styles may help people to recover from trauma. This may help us to provide better treatments and support services for people who are experiencing ongoing difficulties after a trauma or PTSD.

To thank you for volunteering your time to help us with this research, you will be entered into a prize draw to win one of four shopping vouchers worth £25.00!

Are the procedure and results confidential?
All information which is collected about you during the course of this research will be kept strictly confidential. We may share the data we collect with researchers at other institutions, but any information which leaves the research centre will have your name and address removed so you cannot be recognised from it. Any information about your identity obtained from this research will be kept private. In any sort of report we might publish, we will not include information that will make it possible for other people to know your name or identify you in any way. You will be simply referred to by your gender and age.

What will happen to the results of the research study?
Where appropriate, the results of this study will be presented at medical and scientific conferences and published in journals. You will not be identified in any report or publication. The results of this study will also help us to design future research projects, and possibly lead to new methods of treatment for trauma related conditions.

What will happen if I do not want to carry on with the study?
Nothing will happen. If you no longer wish to participate you can withdraw whenever you wish, without giving any reason, and your current treatment or legal rights will not be affected.

Who is organising and funding the research?
The study is funded and managed by the University of Exeter.
Jade West—PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles (Supervised by Dr Neal Marsh & Dr Anke Karl) Version 2. 21/06/12

All research in the NHS is looked at by an independent group of people called a Research Ethics Committee to protect your safety, rights, wellbeing, and dignity. This study has been reviewed and given favourable opinion by NRES Committee South West – Exeter.

What are the possible disadvantages and risks of taking part?
It is very unlikely that any part of this study will cause you harm. The questionnaire asks questions about the traumatic event you experienced, symptoms and distress you may be experiencing as a result of the event, and how you cope with these experiences. Completing the questionnaire involves ticking the answers that apply to you (you would not have to write down or describe your experiences). Some people may find some of the questions difficult or upsetting. In the unlikely event that you feel very upset or distressed after completing the questionnaire, we would advise you to seek advice from your GP and/or your care-coordinator. We advise anyone who is currently experiencing thoughts about ending their life to contact their GP immediately, and/or their care-coordinator. We may inform your GP about these concerns and your participation in this study if you request us to do so in the consent form. You could also call one of the helpline numbers provided at the end of this information sheet.

The study is entirely non invasive. However, if any aspect of the way you have been approached or treated in the course of the study causes you concern, please write to the project supervisor Dr. Anke Karl at the School of Psychology, College of Life and Environmental Sciences, University of Exeter, Washington Singer Laboratories, Perry Road, Exeter, EX4 4QG. If you remain unhappy and wish to complain formally, you can do this through the Chair of the University Ethics Committee, Department of Psychology, University of Exeter, Perry Road, Exeter, EX4 4QG.

We advise you to take at least 24 hours to decide whether or not to participate in this study. You can come back to the questionnaire at any time. If we have not heard from you within two months, we will assume that you do not wish to participate.

Contact for Further Information
Jade West
Trainee Clinical Psychologist
School of Life and Environment Sciences,
University of Exeter
Exeter EX4 4QG
Office number: 01392 725 271
Email: jdw210@exeter.ac.uk

Support
If you feel very distressed or suicidal, you can:

- Contact the Samaritans. They operate a 24-hour service that is available every day of the year.
  www.samaritans.org
  Tel: 08457 909090
  If you prefer to write down how you are feeling, you can email Samaritans at jo@samaritans.org.
Jade West– PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles (Supervised by Dr Neal Marsh & Dr Anke Karl) Version 2. 21/06/12

- Go to your nearest accident and emergency (A&E) department and tell the staff how you are feeling
- Contact NHS Direct, a 24-hour service, on 0845 4647
- Speak to a friend, family member or someone you trust
- Make an urgent appointment to see your GP or your care-coordinator

If you have any concerns about posttraumatic Stress Disorder (PTSD), you can:

- Seek advice from your GP or your care-coordinator
- Contact Assistance Support and Self Help in Surviving Trauma (ASSIST)
  This is a registered charity that offers support to those affected by PTSD.
  www.traumatic-stress.freeserve.co.uk
  Tel: 01788 560800 (Helpline available 10am-4pm, Mon-Fri.)
Title of Project: The effects of traumatic experiences and how people cope
Name of Researcher: Jade West

Please read the consent form carefully before deciding whether to participate in this study. Please indicate whether you agree or disagree with each statement by writing your initials in the boxes on the right.

<table>
<thead>
<tr>
<th>1. I confirm that I have read and understand the information sheet dated 23/01/2012 for the above study. I have had the opportunity to consider the information, ask questions and have had these answered satisfactorily.</th>
</tr>
</thead>
<tbody>
<tr>
<td>2. I understand that my personal details will be kept securely on password protected computers, and no identifiable details will be used as part of the research results.</td>
</tr>
<tr>
<td>3. I understand that some people may find some of the questions difficult or upsetting. I understand that, if I do feel very upset or distressed after completing the questionnaire, I can seek advice from my GP and/or my care-coordinator, or use one of the support contacts provided by this study.</td>
</tr>
<tr>
<td>4. I understand that my participation is voluntary and that I am free to withdraw at any time without giving any reason, without my medical care or legal rights being affected.</td>
</tr>
<tr>
<td>5. I understand that only the non-identifiable information may be looked at by individuals from the trauma research team headed by Dr. Anke Karl where it is relevant to my taking part in this research. Only the chief investigator (Jade West) will have access to personal contact details for the purposes of posting the vouchers to those who have won them. I give permission for these individuals to have access to my records.</td>
</tr>
<tr>
<td>6. I understand that relevant sections of my medical notes and data collected during the study may be looked at by individuals from regulatory authorities or from the NHS Trust where it is relevant to my taking part in this research. I give permission for these individuals to have access to my records.</td>
</tr>
<tr>
<td>7. I agree to my GP being informed of my participation in the study.</td>
</tr>
<tr>
<td>8. I agree to take part in the above study.</td>
</tr>
</tbody>
</table>

Name:……………………………………………………………………..
Signature:………………………………………………………………..
Date:……………………………………………………………………..
Demographics

You will now be asked for some general background information, and some screening questions to check whether you will be able to participate in the study. Please be assured that any data collected will remain anonymous and confidential. The information in this section will be kept separate from your answers to the main survey.

1. Please enter your age:

   You must be aged between 18-65 to participate in this study. If you are outside this age range and you proceed with the study, your answers will not be included in the study.

2. Please tell us your gender:  M  F (please circle)

3. If you wish to be entered into the prize draw to win one of four shopping vouchers worth £25.00, please enter your contact details.

   Name:………………………………………………………………
   Address:……………………………………………………………
   ………………………………………………………………………
   telephone number:………………………………………………

<table>
<thead>
<tr>
<th>Question</th>
<th>Yes</th>
<th>No</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Have you ever experienced a very stressful or traumatic event at some point in your life?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Are you able to read English?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Do you have any history of neurological illness or head injuries?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Have you ever been told by a mental health professional that you have psychosis or schizophrenia?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Have you been recently experiencing thoughts or plans about ending your life?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Are you currently using any illegal drugs?</td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Are you currently drinking more than 20 units of alcohol per week?</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please note that if you have answered 'no' to questions 4 or 5, or if you have answered 'yes' to questions 6, 7, 8, 9, or 10, then I'm afraid you will not be able to participate in this study. This is because we have very strict criteria about who is able to take part in the study. If you proceed with the survey, your answers will not be included. Thank you for your interest in our research.
### LIFE EVENTS CHECKLIST

Listed below are a number of difficult or stressful things that sometimes happen to people. For each event check one or more of the boxes to the right to indicate that: (a) it *happened to you* personally, (b) you *witnessed it* happen to someone else, or (c) it *doesn’t apply* to you.

Be sure to consider your *entire life* (growing up as well as adulthood) as you go through the list of events.

<table>
<thead>
<tr>
<th>Event</th>
<th>Happened to me</th>
<th>Witnessed it</th>
<th>Doesn’t apply</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Natural disaster (for example, flood, hurricane, tornado, earthquake)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Fire or explosion</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. Transportation accident (for example, car accident, boat accident, train wreck, plane crash)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Serious accident at work, home, or during recreational activity</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5. Exposure to toxic substance (for example, dangerous chemicals, radiation)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. Physical assault (for example, being attacked, hit, slapped, kicked, beaten up)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Assault with a weapon (for example, being shot, stabbed, threatened with a knife, gun, bomb)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. Sexual assault (rape, attempted rape, made to perform any type of sexual act through force or threat of harm)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Other unwanted or uncomfortable sexual experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10. Combat or exposure to a war-zone (in the military or as a civilian)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Captivity (for example, being kidnapped, abducted, held hostage, prisoner of war)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Life-threatening illness or injury</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Severe human suffering</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14. Sudden, violent death (for example, homicide, suicide)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15. Sudden, unexpected death of someone close to you</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16. Serious injury, harm, or death you caused to someone else</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Any other very stressful event or experience</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Please read each statement and circle a number 0, 1, 2 or 3 which indicates how much the statement applied to you over the past week. There are no right or wrong answers. Do not spend too much time on any statement.

**The rating scale is as follows:**
- **0** Did not apply to me at all
- **1** Applied to me to some degree, or some of the time
- **2** Applied to me to a considerable degree, or a good part of time
- **3** Applied to me very much, or most of the time

<table>
<thead>
<tr>
<th>#</th>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>I found it hard to wind down</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>I was aware of dryness of my mouth</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>I couldn't seem to experience any positive feeling at all</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>I experienced breathing difficulty (eg, excessively rapid breathing, breathlessness in the absence of physical exertion)</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>5</td>
<td>I found it difficult to work up the initiative to do things</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>I tended to over-react to situations</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>I experienced trembling (eg, in the hands)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>I felt that I was using a lot of nervous energy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>I was worried about situations in which I might panic and make a fool of myself</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>I felt that I had nothing to look forward to</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>I found myself getting agitated</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>I found it difficult to relax</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13</td>
<td>I felt down-hearted and blue</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>14</td>
<td>I was intolerant of anything that kept me from getting on with what I was doing</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>15</td>
<td>I felt I was close to panic</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>16</td>
<td>I was unable to become enthusiastic about anything</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17</td>
<td>I felt I wasn't worth much as a person</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>18</td>
<td>I felt that I was rather touchy</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>19</td>
<td>I was aware of the action of my heart in the absence of physical exertion (eg, sense of heart rate increase, heart missing a beat)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>20</td>
<td>I felt scared without any good reason</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>21</td>
<td>I felt that life was meaningless</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Jade West– PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles (Supervised by Dr Neal Marsh & Dr Anke Karl) Version 2. 21/06/12

<table>
<thead>
<tr>
<th></th>
<th>Depression</th>
<th>Anxiety</th>
<th>Stress</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Normal</strong></td>
<td>0-4</td>
<td>0-3</td>
<td>0-7</td>
</tr>
<tr>
<td><strong>Mild</strong></td>
<td>5-6</td>
<td>4-5</td>
<td>8-9</td>
</tr>
<tr>
<td><strong>Moderate</strong></td>
<td>7-10</td>
<td>6-7</td>
<td>10-12</td>
</tr>
<tr>
<td><strong>Severe</strong></td>
<td>11-13</td>
<td>8-9</td>
<td>13-16</td>
</tr>
<tr>
<td><strong>Extremely severe</strong></td>
<td>14+</td>
<td>10+</td>
<td>17+</td>
</tr>
</tbody>
</table>
Below you will find a list of statements. Please rate how true each statement is for you by circling a number next to it. Use the scale below to make your choice.

<table>
<thead>
<tr>
<th></th>
<th>Never true</th>
<th>Very seldom true</th>
<th>Seldom true</th>
<th>Sometimes true</th>
<th>Frequently true</th>
<th>Almost always true</th>
<th>Always true</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>It's OK if I remember something unpleasant.</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
</tr>
<tr>
<td>2.</td>
<td>My painful experiences and memories make it difficult for me to live a life that I would value.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>3.</td>
<td>I'm afraid of my feelings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>4.</td>
<td>I worry about not being able to control my worries and feelings.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>5.</td>
<td>My painful memories prevent me from having a fulfilling life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>6.</td>
<td>I am in control of my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>7.</td>
<td>Emotions cause problems in my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>8.</td>
<td>It seems like most people are handling their lives better than I am.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>9.</td>
<td>Worries get in the way of my success.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
<tr>
<td>10.</td>
<td>My thoughts and feelings do not get in the way of how I want to live my life.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>
Jade West—PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles (Supervised by Dr Neal Marsh & Dr Anke Karl) Version 2. 21/06/12

WBSI

This survey is about thoughts. There are no right or wrong answers, so please respond honestly to each of the items below. Be sure to answer every item by circling the letter that applies to you beside each.

<table>
<thead>
<tr>
<th></th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
<th>E</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Strongly Disagree</td>
<td>Disagree</td>
<td>Neutral or Don't Know</td>
<td>Agree</td>
<td>Strongly Agree</td>
</tr>
</tbody>
</table>

1. There are things I prefer not to think about.
2. Sometimes I wonder why I have the thoughts I do.
3. I have thoughts that I cannot stop.
4. There are images that come to mind that I cannot erase.
5. My thoughts frequently return to one idea.
6. I wish I could stop thinking of certain things.
7. Sometimes my mind races so fast I wish I could stop it.
8. I always try to put problems out of mind.
9. There are thoughts that keep jumping into my head.
10. There are things that I try not to think about.
11. Sometimes I really wish I could stop thinking.
12. I often do things to distract myself from my thoughts.
13. I have thoughts that I try to avoid.
14. There are many thoughts that I have that I don't tell anyone.
15. Sometimes I stay busy just to keep thoughts from intruding on my mind.

SCORING: Total the items with A=1, B=2, C=3, D=4, E=5.

See Wegner and Zanakos (1994) for norms and interpretation.
These questions measure how you typically act towards yourself in difficult times.

Please read each statement carefully before answering. To the left of each item, indicate how often you behave in the stated manner, using the following scale:

<table>
<thead>
<tr>
<th></th>
<th>Almost never</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>Almost always</th>
</tr>
</thead>
</table>

_____ 1. I’m disapproving and judgmental about my own flaws and inadequacies.
_____ 2. When I’m feeling down I tend to obsess and fixate on everything that’s wrong.
_____ 3. When things are going badly for me, I see the difficulties as part of life that everyone goes through.
_____ 4. When I think about my inadequacies, it tends to make me feel more separate and cut off from the rest of the world.
_____ 5. I try to be loving towards myself when I’m feeling emotional pain.
_____ 6. When I fail at something important to me I become consumed by feelings of inadequacy.
_____ 7. When I’m down and out, I remind myself that there are lots of other people in the world feeling like I am.
_____ 8. When times are really difficult, I tend to be tough on myself.
_____ 9. When something upsets me I try to keep my emotions in balance.
_____ 10. When I feel inadequate in some way, I try to remind myself that feelings of inadequacy are shared by most people.
_____ 11. I’m intolerant and impatient towards those aspects of my personality I don't like.
_____ 12. When I’m going through a very hard time, I give myself the caring and tenderness I need.
13. When I’m feeling down, I tend to feel like most other people are probably happier than I am.

14. When something painful happens I try to take a balanced view of the situation.

15. I try to see my failings as part of the human condition.

16. When I see aspects of myself that I don’t like, I get down on myself.

17. When I fail at something important to me I try to keep things in perspective.

18. When I’m really struggling, I tend to feel like other people must be having an easier time of it.

19. I’m kind to myself when I’m experiencing suffering.

20. When something upsets me I get carried away with my feelings.

21. I can be a bit cold-hearted towards myself when I’m experiencing suffering.

22. When I’m feeling down I try to approach my feelings with curiosity and openness.

23. I’m tolerant of my own flaws and inadequacies.

24. When something painful happens I tend to blow the incident out of proportion.

25. When I fail at something that’s important to me, I tend to feel alone in my failure.

26. I try to be understanding and patient towards those aspects of my personality I don’t like.
This section is in two parts.

**Part 1.**

Below are domains of life that are valued by some people. We are concerned with your subjective experience of your quality of life in each of these domains. One aspect of quality of life involves the importance one puts on the different domains of living. Rate the importance of each domain (by circling a number) on a scale of 1 to 10; 1 means that domain is not at all important, and 10 means that domain is very important. Not everyone will value all of these domains, or value all domains the same. Rate each domain according to your own personal sense of importance.

**During the past week**

<table>
<thead>
<tr>
<th>Domain</th>
<th>Not at all important</th>
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<th>Extremely important</th>
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<tbody>
<tr>
<td>1. Family relations (other than marriage or parenting)</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>2. Marriage/couples/intimate relations</td>
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<tr>
<td>3. Parenting</td>
<td>1</td>
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<tr>
<td>4. Friendships/social relations</td>
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<td>5. Employment</td>
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<td>6. Education/training</td>
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<td>7. Recreation</td>
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<td>4</td>
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<tr>
<td>8. Spirituality</td>
<td>1</td>
<td>2</td>
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<td>4</td>
<td>5</td>
<td>6</td>
<td>7</td>
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<tr>
<td>9. Citizenship/community life</td>
<td>1</td>
<td>2</td>
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<td>4</td>
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<tr>
<td>10. Physical well-being</td>
<td>1</td>
<td>2</td>
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</table>
In this section, we would like you to give a rating of how consistent your actions are with each value. Everyone does better in some domains than others. We are NOT asking about your ideal in each domain. We want to know how you think you have been doing during the past week. Rate each item (by circling a number) on a scale of 1 to 10; 1 means that your actions have been fully inconsistent with your value, and 10 means that your actions have been fully consistent with your value.

<table>
<thead>
<tr>
<th>Domain</th>
<th>Not at all important</th>
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<td>2. Marriage/couples/intimate relations</td>
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<td>4. Friendships/social relations</td>
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<td>4</td>
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<tr>
<td>5. Employment</td>
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<tr>
<td>6. Education/training</td>
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<tr>
<td>7. Recreation</td>
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<tr>
<td>8. Spirituality</td>
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<td>9. Citizenship/community life</td>
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</tbody>
</table>
Below is a list of problems and complaints that people sometimes have in response to stressful life experiences. Please read each one carefully, put an “X” in the box to indicate how much you have been bothered by that problem in the last month.

<table>
<thead>
<tr>
<th>No.</th>
<th>Response:</th>
<th>Not at all (1)</th>
<th>A little bit (2)</th>
<th>Moderately (3)</th>
<th>Quite a bit (4)</th>
<th>Extremely (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Repeated, disturbing memories, thoughts, or images of a stressful experience from the past?</td>
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<td>2.</td>
<td>Repeated, disturbing dreams of a stressful experience from the past?</td>
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<td>3.</td>
<td>Suddenly acting or feeling as if a stressful experience were happening again (as if you were reliving it)?</td>
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<td>4.</td>
<td>Feeling very upset when something reminded you of a stressful experience from the past?</td>
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<td>5.</td>
<td>Having physical reactions (e.g., heart pounding, trouble breathing, or sweating) when something reminded you of a stressful experience from the past?</td>
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<td>6.</td>
<td>Avoid thinking about or talking about a stressful experience from the past or avoid having feelings related to it?</td>
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<td>7.</td>
<td>Avoid activities or situations because they remind you of a stressful experience from the past?</td>
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<td>8.</td>
<td>Trouble remembering important parts of a stressful experience from the past?</td>
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<td>9.</td>
<td>Loss of interest in things that you used to enjoy?</td>
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<td>10.</td>
<td>Feeling distant or cut off from other people?</td>
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<tr>
<td>11.</td>
<td>Feeling emotionally numb or being unable to have loving feelings for those close to you?</td>
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<tr>
<td>12.</td>
<td>Feeling as if your future will somehow be cut short?</td>
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<tr>
<td>13.</td>
<td>Trouble falling or staying asleep?</td>
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<tr>
<td>14.</td>
<td>Feeling irritable or having angry outbursts?</td>
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<tr>
<td>15.</td>
<td>Having difficulty concentrating?</td>
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<tr>
<td>16.</td>
<td>Being “super alert” or watchful on guard?</td>
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<td>17.</td>
<td>Feeling jumpy or easily startled?</td>
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</tbody>
</table>
Please indicate for each of the following statements the degree to which the change reflected in the question is true in your life as a result of your crisis, using the following scale:

0= I did not experience this change as a result of my crisis.
1= I experienced this change to a very small degree as a result of my crisis.
2= I experienced this change to a small degree as a result of my crisis.
3= I experienced this change to a moderate degree as a result of my crisis.
4= I experienced this change to a great degree as a result of my crisis.
5= I experienced this change to a very great degree as a result of my crisis.

<table>
<thead>
<tr>
<th>Statement</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I changed my priorities about what is important in life.</td>
<td></td>
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<tr>
<td>2. I have a greater appreciation for the value of my own life.</td>
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<tr>
<td>3. I developed new interests.</td>
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<td>4. I have a greater feeling of self-reliance.</td>
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<td>5. I have a better understanding of spiritual matters.</td>
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<tr>
<td>6. I more clearly see that I can count on people in times of trouble.</td>
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<td>7. I established a new path for my life.</td>
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<tr>
<td>8. I have a greater sense of closeness with others.</td>
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<tr>
<td>9. I am more willing to express my emotions.</td>
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<tr>
<td>10. I know better that I can handle difficulties.</td>
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<td>11. I am able to do better things with my life.</td>
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<td>12. I am better able to accept the way things work out.</td>
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<td>13. I can better appreciate each day.</td>
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<td>14. New opportunities are available which wouldn’t have been otherwise.</td>
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<td>15. I have more compassion for others.</td>
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<td>16. I put more effort into my relationships.</td>
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<td>17. I am more likely to try to change things which need changing</td>
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<td>18. I have a stronger religious faith.</td>
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<td>19. I discovered that I’m stronger than I thought I was.</td>
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<td>20. I learned a great deal about how wonderful people are.</td>
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<td>21. I better accept needing others.</td>
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PTCI

This questionnaire lists different thoughts which people may have after a traumatic experience. In this questionnaire we are interested in the way that YOU thought, IN THE LAST MONTH, in regard to the traumatic event that you have experienced. Please read each statement carefully and decide how much you have AGREED or DISAGREED with each statement during the last month.

For each of the thoughts, please show your answer by choosing the number from the scale below which BEST DESCRIBES HOW MUCH YOU AGREED WITH THE STATEMENT and put a tick to the number next to that statement. People react in different ways; there are no right or wrong answers to these statements.

<table>
<thead>
<tr>
<th></th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
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<th>7</th>
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<tbody>
<tr>
<td>1</td>
<td>Totally Disagree</td>
<td>Disagree very much</td>
<td>Disagree slightly</td>
<td>neutral</td>
<td>Agree slightly</td>
<td>Agree very much</td>
<td>Totally agree</td>
</tr>
</tbody>
</table>

1. My reactions since the event mean that I am going crazy.
2. Somebody else would have stopped the event from happening.
3. I feel like an object, not like person.
4. I have to be on guard all the time.
5. Nothing good can happen to me anymore.
6. I will not be able to control my anger and will do something terrible.
7. The event happened to me because of the sort of person I am.
8. The world is a dangerous place.
9. I feel like I don’t know myself any more.
10. If I think about the event, I will not be able to handle it.
11. People can’t be trusted.
12. My life has been destroyed by the event.
13. Somebody else would not have gotten into this situation.
14. I can’t deal with even the slightest upset.
15. I feel dead inside.
16. People are not what they seem.
17. I can’t rely on myself.
18. There is something wrong with me as a person.
19. I will never be able to feel normal emotions again.
20. I have to be especially careful because you never know what can happen next.
21. My reactions since the event showed that I am a lousy
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The WHO (Five) Well-Being Index

Please indicate for each of the five statements which is closest to how you have been feeling over the last two weeks. Notice that higher numbers mean better well-being. Example: if you have felt cheerful and in good spirits more than half of the time during the last two weeks, put a tick in the box with the number 3 next to it.

<table>
<thead>
<tr>
<th>Over the last two weeks</th>
<th>All of the time</th>
<th>Most of the time</th>
<th>More than half of the time</th>
<th>Less than half of the time</th>
<th>Some of the time</th>
<th>At no time</th>
</tr>
</thead>
<tbody>
<tr>
<td>1 I have felt cheerful and in good spirits</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>2 I have felt calm and relaxed</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>3 I have felt active and vigorous</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>4 I woke up feeling fresh and rested</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
<tr>
<td>5 My daily life has been filled with things that interest me</td>
<td>5</td>
<td>4</td>
<td>3</td>
<td>2</td>
<td>1</td>
<td>0</td>
</tr>
</tbody>
</table>
Participant Debriefing Sheet

**Study title:** PTSD symptom severity and Posttraumatic Growth: The moderating role of coping styles.

**Thank you**
Many thanks for taking part in this study. We hope it was interesting. Please feel free to ask the Researcher any questions you have about the procedure.

To thank you completing the questionnaire, You have been entered into a prize draw to win one of four shopping vouchers worth **£25.00**! If you win, we will contact you to find out what vouchers you would like.

**What was the purpose of the study?**
The aim of this study was to explore individual differences in the way people cope after experiencing a traumatic event, and whether particular coping styles are associated with different degrees of recovery.

We know that experiencing a traumatic event can have a huge impact on people's lives. We also know that people have their own individual ways of coping. Sometimes, following a trauma, people use coping strategies that might make them feel worse in the long term (such as avoidance). But not much research has looked at **helpful** coping styles which enable people to recover from their traumatic experience. Some studies suggest that ‘acceptance’ coping and ‘values-based’ coping styles can help to reduce symptoms and distress (to find out more about these coping styles, please read information about Acceptance and Commitment Therapy). We are specifically interested in whether people with high levels of these coping styles will have better wellbeing and less distress or symptoms of PTSD.

The questionnaire you completed has provided us with measures of your mood, your stressful experiences, and the coping strategies you use. It is hoped that this research may help to lead to a better understanding of particular coping styles than help people recover from trauma. This may help us to provide better treatments and support services for people who are experiencing ongoing difficulties after a trauma.

**Are the procedure and results confidential?**
All information which is collected about you during the course of this research will be kept strictly confidential. We may share the data we collect with researchers at other institutions, but any information which leaves the University Brain Research and Imaging Centre will have your name and address removed so you cannot be recognised from it. Any information about your identity obtained from this research will be kept private. In any sort of report we might publish we will not include information that will make it possible for other people to know your name or identify you in any way. You will be simply referred to by your gender and age.

**What will happen to the results of the research study?**
Where appropriate, the results of this study will be presented at medical and scientific conferences and published in journals. You will not be identified in any report or publication. The results of this study will also help us to design future research projects, and possibly lead to improved treatments for PTSD.

**What do I do if I am unhappy with the way I was treated or with something that happened to me?**

In the first instance, you should contact the leader of the Research Project:  
Dr. Anke Karl  
University of Exeter  
Washington Singer Laboratories  
Perry Road  
Exeter  
EX4 4QG.

If you are still unhappy, you should contact the relevant University Ethics Committee:  
Chair of the University Ethics Committee  
Department of Psychology  
University of Exeter  
Perry Road  
Exeter  
EX4 4QG

**Who has reviewed the study?**
The study has been reviewed and approved by the South West Ethics Committee, and local National Health Service Research and Development Department.

**Contact for Further Information**
Jade West  
Trainee Clinical Psychologist  
School of Life and Environment Sciences,  
University of Exeter  
Perry Road,  
EXETER  
EX4 4QG  
Email: jdw210@exeter.ac.uk

**Support**
If you are feeling very upset or distressed after completing this survey, we advise that you use one or more of the following support options:

If you feel very distressed or suicidal, you can:

- Contact the Samaritans. They operate a 24-hour service that is available every day of the year.  
  [www.samaritans.org](http://www.samaritans.org)  
  Tel: 08457 909090
If you prefer to write down how you are feeling, you can email Samaritans at jo@samaritans.org.

- Go to your nearest accident and emergency (A&E) department and tell the staff how you are feeling
- Contact NHS Direct, a 24-hour service, on 0845 4647
- Speak to a friend, family member or someone you trust
- Make an urgent appointment to see your GP or your care-coordinator

if you have any concerns about posttraumatic Stress Disorder (PTSD), you can:

- Seek advice from your GP or your care-coordinator
- Contact Assistance Support and Self Help in Surviving Trauma (ASSIST)
  This is a registered charity that offers support to those affected by PTSD.
  www.traumatic-stress.freeserve.co.uk
  Tel: 01788 560800 (Helpline available 10am-4pm, Mon-Fri.)

Once again, many thanks for your participation.
The School of Psychology Ethics Committee met recently and your NHS Local Research Ethics Committee application and approval were reviewed. In line with our procedures, your project is now de facto approved.

The agreement of the Committee is subject to your compliance with the British Psychological Society Code of Conduct and the University of Exeter procedures for data protection (http://www.ex.ac.uk/admin/academic/datapro/). In any correspondence with the Ethics Committee about this application, please quote the reference number above.

I wish you every success with your research.

Yours sincerely,

Cris Burgess
Chair of School Ethics Committee
Appendix 11

Health Research Authority

NRES Committee South West - Exeter
Bristol Research Ethics Committee Centre
Whistleblower
Level 3
Blocks B
Lewins Mead
Bristol
BS1 2HT

Telephone: 0117 342 1332
Facsimile: 0117 342 0445
e-mail: UH-T-SouthWest2@nhs.net

21 August 2012

Miss Jade West
Trainee Clinical Psychologist
Taunton and Somerset NHS Foundation Trust
Taunton Musgrove Park Hospital,
Taunton
TA1 5DA

Dear Miss West

Study title: PTSD symptom severity and Posttraumatic Growth: The moderating role of Acceptance and Commitment Therapy (ACT) coping styles

IRAS Project Number: 95944
REC reference: 12/SW/0165

Thank you for your letter of 15 August 2012, responding to the Committee’s request for further information on the above research and submitting revised documentation.

The further information has been considered on behalf of the Committee by the Chair.

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, subject to the conditions specified below.

Ethical review of research sites

NHS 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.

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.

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 final list of documents reviewed and approved by the Committee is as follows:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Date</th>
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<tr>
<td>Advertisement</td>
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<tr>
<td>Covering Letter</td>
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<td>15 August 2012</td>
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<td>Evidence of insurance or indemnity</td>
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<td>GP/Consultant Information Sheets</td>
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<td>Investigator CV</td>
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<td>Letter from Sponsor</td>
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<tr>
<td>Letter of invitation to participant</td>
<td>2</td>
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<tr>
<td>Other: Screening questions</td>
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<td>Other: CV - Dr Neal Marsh</td>
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<td>Participant Consent Form</td>
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<td>Protocol</td>
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<td>Questionnaire: Life Events checklist</td>
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<tr>
<td>Questionnaire: Valued Living Questionnaire</td>
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<td>Questionnaire: PTCI</td>
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<td>Questionnaire: The WHO (Five) Well Being Index</td>
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<tr>
<td>Questionnaire: On Line version of Questionnaire</td>
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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

12/SW/0165 Please quote this number on all correspondence

With the Committee's best wishes for the success of this project

Yours sincerely

[Signature]

Dr Denise Sheehan
Chair
NRES Committee South West - Exeter

Enclosures: "After ethical review – guidance for researchers" [SL-AR2]

Copy to: Dr Michael Wykes (m.c.wykes@exeter.ac.uk)
Mr Andy Harewood, Somerset Partnership NHS Trust (andrew.harewood@sompar.nhs.uk)