Predictors of posttraumatic growth

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Predictors of Posttraumatic Growth

Amanda Maria Gleeson BA, MSc

Submitted in part fulfilment of the Doctorate in Clinical Psychology, School of Psychology, Queen’s University Belfast

May 2020

Supervisors and Contributors

Dr. Donncha Hanna, Dr. David Curran, Dr. Jane Simms, Dr. Kevin Dyer, Dr. Shelley Fletcher, Ms. Rachel Reeves and Dr. Martin Dorahy.
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A special thank you to all the clinicians in the psychological services, without whom, this research would not have happened. There were too many to name individually who were fundamentally helpful and encouraging, which is a remarkable complaint to have! Thank you all for being so supportive and passionate about a project you did not have to be invested in.

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I would like to dedicate this project to my stepfather, Ger.
# Table of Contents

**Section 1: Systematic Literature Review**

- Abstract ...................................................................... 2
- Introduction ................................................................... 3
- Method ......................................................................... 8
- Results ......................................................................... 10
- Discussion ..................................................................... 23
- References ..................................................................... 31

**Section 2: Technical Appendix for Systematic Review**

- Appendix A. Quality Appraisal Item-Level Scores ....... 42
- Appendix B. Quality Appraisal Checklist Items ........... 44
- Appendix C. Funnel Plots for Publication Bias ........... 42

**Section 3: Author Guidelines for Journal of Clinical Psychology**

**Section 4: Large Scale Research Project (LSRP)**

- Abstract ...................................................................... 57
- Clinical Impact Statement ......................................... 58
- Introduction ................................................................... 59
- Method ......................................................................... 66
- Results ......................................................................... 70
- Discussion ..................................................................... 79
- References ..................................................................... 87

**Section 5: Technical Appendices for LSRP**

- Appendix A. G*Power calculation ................................ 95
- Appendix B. Battery of Self-Report Questionnaires ....... 96
- Appendix C. Participant Information Pack ................ 106
- Appendix D. Participant Consent Form ....................... 110
- Appendix E. Distress Protocol .................................... 112
- Appendix F. Participant Debrief Sheet ....................... 113
- Appendix G. Correlation Table .................................... 115

**Section 6: Author Guidelines for Psychological Trauma**

**Section 7: Ethical Approval**

**Section 8: Trust Governance Approval**
Section 1: Systematic Literature Review

A Meta-Analytic Review of the Relationship Between Attachment Styles and Posttraumatic Growth in Adults Exposed to Traumatising Events

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PTG AND ATTACHMENT STYLE

Abstract

Posttraumatic growth refers to positive psychological changes occurring following exposure to traumatising life events. Attachment styles have been demonstrated to predict post-trauma outcomes. The present review explored the relationship between attachment styles and posttraumatic growth via meta-analytic review of 16 studies, examining the relationship between posttraumatic growth and secure, dismissive, preoccupied, and fearful attachment styles. Four correlational meta-analyses revealed a significant small positive relationship between secure attachment and posttraumatic growth ($r = .22, p < .001$); a significant small negative relationship between dismissive attachment and posttraumatic growth ($r = -.12, p < .001$), an extremely weak relationship between preoccupied attachment and posttraumatic growth ($r = .01, p = .85$), and a significant small positive relationship between fearful attachment and posttraumatic growth ($r = .11, p < .05$). Findings provide useful information for clinicians regarding the potential impact of attachment style following traumatising exposure, and have implications for psychological assessment, formulation, and intervention goal-setting.

Key Words: Attachment, posttraumatic growth, posttraumatic stress disorder, PTSD, trauma, adults.
A Meta-Analytic Review of the Relationship Between Attachment Styles and Posttraumatic Growth in Adults Exposed to Traumatising Events.

Reactions following direct or indirect exposure to traumatising events involving actual or threatened death, sexual violation or serious injury (Diagnostic and Statistical Manual of Mental Disorders-Fifth Edition; DSM-5, American Psychiatric Association, 2013) vary based on individual differences and event-related variables (McMillen, 1999; Salo, Quota, & Punamaki, 2005). Posttraumatic Growth (PTG; Tedeschi & Calhoun, 1996) describes positive change after the struggle to cope with traumatising experiences. Tedeschi and Calhoun (1996) suggested five potential domains for growth; improved interpersonal relationships, greater sense of personal strength, new possibilities, spiritual development, and new appreciation of life. Research has explored variables associated with PTG to understand individual characteristics predicting those more likely to experience it, and processes facilitating its emergence (Tanyi, Szluha, Nemes, Kovács, & Bugán, 2015; Dekel, Mandl, & Solomon, 2011). Tedeschi and Calhoun (2004) emphasised coping responses and cognitive processes as fundamental to PTG development, with factors such as attachment style considered by some to mediate the relationship between trauma and psychological outcomes (Romeo et al., 2019).

Attachment and Posttraumatic reactions

Attachment is considered influential to the way individuals regulate emotion and cope with adversity (Bowlby, 1969; Bartholomew & Horowitz, 1991). This is due to its role in the early development of an individual’s internal working models which influence how they perceive and interact with
PTG AND ATTACHMENT STYLE

their self, others, and the world. This in turn guides cognitive, emotional, and social development (Arikan, Stopa, Carnelley, & Karl, 2016; Salo, Quota, & Punamaki, 2005). Attachment has been postulated to play a role in posttraumatic reactions. Cognitive models of Posttraumatic Stress Disorder (PTSD; Ehlers & Clark, 2000) have emphasised the role of event-related appraisals and self-appraisals in the development of distress, and conceptualisations of complex PTSD (CPTSD; Courtois & Ford, 2013) highlight the centrality of an individual’s self-concept after trauma which is heavily influenced by their internal working model.

Theorists of adult attachment argue for the number of distinct attachment categories (Bartholomew & Horowitz, 1991; Hazan & Shaver, 1987). Securely attached individuals are characterised by a comfort with interdependence and intimacy, having a balanced view of self and others (Mikulincer, Shaver, & Pereg, 2003). They exhibit appropriate expectations of others’ responsiveness to their needs (Hazan & Shaver, 2987, Mikulincer & Shaver, 2012). Preoccupied individuals have a more negative self-concept, relying on the approval and affection of others to achieve self-acceptance (Bartholomew & Horowitz, 1991; Main & Solomon 1990). This attachment style has also been associated with a fear of rejection or abandonment, triggering elevated efforts to seek closeness with others (Brennan, Clark, & Shaver, 1998). Dismissively attached individuals possess an overly positive view of the self as independent and self-sufficient, and a negative view of others. This leads to an avoidance of intimacy and a downplaying of the importance of others, in order to uphold their self-esteem (Bartholomew & Horowitz, 1991). A fourth attachment style, fearful (or unresolved)
attachment, is generally underrepresented in the literature. Consensus conceptualises it as a fundamental breakdown in attachment strategy (Ma, 2006), with continuing states of fear and disorganisation (Hesse & Main, 2000; Main & Solomon, 1990). Characterised by a highly negative view of self and others, individuals who present with this attachment pattern desire closeness with others, but are terrified of it, as a result of traumatised or frightening parenting (Ma, 2006). These individuals therefore relate to intimacy in a chaotic and unresolved manner (Adams, Wrath, & Merg, 2018).

Attachment styles are proposed to impact social and emotional adaptation in adults (Bartholomew & Horowitz, 1991), with links between attachment and distress thought to represent patterns of regulating internal and interpersonal conflicts (Mikulincer & Shaver, 2012). The relationship between attachment and adaptation is largely consistent across cultures (Van Ijzendoorn & Sagi-Schwartz, 2008). Insecure attachment styles have long been associated with worse outcomes after trauma. Fraley et al. (2006) found that insecurely attached individuals reported greater distress after the September 11 terrorist attacks, than those with secure attachment. Insecurely attached individuals have been linked to greater emotional difficulties and more PTSD symptoms after traumatic events (Halpern, Maunder, Schwartz, & Gurevich, 2012; Ein-Dor et al., 2010; Mikulincer, Ein-Dor, Solomon, & Shaver, 2011). This may be associated with a failure to activate internal working models for security and utilise social support effectively to facilitate trauma resolution (Ein-Dor et al., 2016; Volgin & Bates, 2016). For example, insecure attachment is a risk factor for maladaptive coping with distress (Mikulincer & Shaver, 2012). Individuals with dismissive
attachment may self-isolate in response to adversity (Adams, Wrath, & Merg, 2018), therefore, not utilising the support of others to facilitate trauma resolution (Ein-Dor et al., 2016). Preoccupied individuals may ineffectively escalate attempts to seek support from others, while fearfully attached individuals may inconsistently move between a desire for support, and a rejection of it, frequently sabotaging interpersonal relationships (Adams, Wrath, & Merg, 2018; Bartholomew & Horowitz, 1991).

With regard to emotional regulation, Mikulincer & Shaver (2007) suggest that adults with preoccupied attachment use hyperactivating strategies, and are hypervigilant to attachment-related environmental stimuli. Following a traumatic event, such an emotion-regulation strategy and attentional bias may reinforce negative event-related appraisals associated with safety (Mikulincer & Shaver, 2007), thus maintaining PTSD symptoms (Arikan et al., 2016). Adults with dismissive attachment use deactivating strategies to down-regulate their attachment system when faced with stressful events, and avoid attachment- and threat-related cues to inhibit negative affect (Arikan, Stopa, Carnelley, & Karl, 2016). This prevents post-event processing. There is also evidence to support a positive correlation between insecure attachment and posttraumatic distress (Fraley, Fazzari, Bonanno, & Dekel, 2006; Kanninen, Punamaki, & Quota, 2003; Solomon, Ginzberg, Mikulincer, Neria, & Ohry, 1998). With regard to fearful attachment, this category demonstrates the highest level of affect dysregulation of the three insecure subtypes. These individuals are considered to lack organised and coherent strategies for self-regulation (Pascuzzo, Moss, & Cyr, 2015; Adams, Wrath, & Merg, 2018), therefore
making them more vulnerable to psychopathology after trauma (Main & Solomon, 1990; Pascuzzo, Moss, & Cyr, 2015). Securely attached individuals, on the other hand, seek proximity to attachment figures to facilitate regulation after traumatic events, therefore supporting alleviation of distress and post-event processing (Arikan et al., 2016).

**Attachment and Posttraumatic Growth**

The influence of attachment on posttraumatic reactions has led to attempts to understand the relationship between attachment styles and PTG, but findings have been inconclusive (Romeo et al., 2019). Schmidt et al. (2012) suggest that an individual’s attachment style influences the way in which a traumatic event is perceived, and is therefore related to the cognitive processing integral for PTG (Schmidt et al., 2012; Tedeschi & Calhoun, 2004). Positive correlations have been consistently demonstrated between PTG and secure attachment (Salo, Quota, & Punamaki, 2005), with Mikulincer, Shaver, and Horesh (2006) proposing that this is due to positive conceptions of self, others, and the world, and their increased likelihood to utilise support to try to find meaning in the traumatic event. For insecure attachment types the relationships with PTG are more varied. Both Arikan and Karanci (2012), and Dekel (2007) demonstrated positive associations between preoccupied attachment and PTG among non-clinical, community samples, while Nelson et al. (2018) demonstrated a negative correlation, also within a community sample. Positive relationships have been observed between dismissive attachment and PTG in survivors of political conflict (Dekel, 2007; Dekel, Mandl, & Solomon, 2011). However, more often than not, this relationship has been found to be negative (Arikan et al., 2016;
PTG AND ATTACHMENT STYLE

Romeo et al., 2017). Fearful attachment, while receiving less representation in the literature than the other three categories, has demonstrated a positive correlation with PTG among oncology samples (Romeo et al., 2017; Romeo et al., 2019).

Objective

The current meta-analysis aims to summarise the relationship between PTG and the attachment styles of secure, preoccupied, dismissive, and fearful. Greater understanding of these relationships may facilitate more holistic conceptualisations of individuals presenting to services for support following trauma. Attachment styles frequently inform client formulations in clinical psychology, as they have been repeatedly shown to predict therapeutic alliance and outcome in trauma populations, including those with CPTSD (Diener & Monroe, 2011; Reynolds et al., 2017). Should a link between attachment and PTG be supported, this may provide clinicians with insight into which individuals may be most likely to experience PTG, therefore supporting therapeutic goal-setting. PTG is associated with increased wellbeing, reduced depression (Helgeson, Reynolds, & Tomich, 2006), and therefore is desirable in the aftermath of a traumatic event. The current review aims to understand the relationship between PTG and attachment styles using correlational meta-analytic methodology.

Method

Review Registration and Search Strategy

The protocol for the review was pre-registered on the International Prospective Register of Systematic Reviews (PROSPERO), on the 12th
November 2019. The following databases were searched in April 2020, to identify relevant papers; PsycInfo, CINAHL, Medline, Web of Science and PTSDPubs (formerly PILOTS). A pilot of the search strategy was conducted on 10th October 2019, and agreed by the research team. The search strategy used the terms: “Posttraumatic growth” (mapped to subject headings and exploded) OR “PTG” OR “Benefit-finding” OR “Stren conversion” OR “Growth after trauma” OR “stress related growth” OR “adversarial growth” AND “Attachment”. Results were limited to articles published in the English language and by age of sample (18 years and over). Unpublished literature, such as dissertations, were also considered to reduce publication bias. Reference lists of papers identified for full text search were also screened for relevant papers. Articles retained for full text search were independently screened for eligibility by two reviewers. Disagreements in the eligibility of articles between the two reviewers were resolved by discussion, and if conclusion could not be reached, the article was reviewed by the third and fourth reviewers.

**Eligibility Criteria**

The following criteria were applied when screening articles for inclusion in the review:

1. Published in the English language.
2. Focused on participants 18 years of age and over.
3. All participants must have experienced at least one Criterion A traumatic event (DSM-5, APA, 2013).
PTG AND ATTACHMENT STYLE


5. Measured PTG and attachment style using reliable and valid measures with robust psychometric properties.

Data Extraction

Data extracted from studies included: Country study conducted in, sample size, gender, age range (Mean & Standard Deviations), measures used to calculate PTG and Attachment, the internal reliability (Cronbach’s alpha; α) for the total scale/subscales, and effect sizes, extracted as correlation coefficient (r) values for PTG and the attachment subscales.

Meta-Analytic Procedure

Four meta-analyses were conducted, one for each of the reported attachment subscales, using MedCalc Statistical Software, Version 19.1.7 (MedCalc Software Ltd., Ostend, Belgium; 2020). Correlation coefficient r values were transformed into Z values, using Fisher’s Z transformation to correct for standard error skew in the meta-analyses (Hedges & Olkin, 1983). Considering the heterogeneity in sample demographics and measures of PTG and attachment styles across the included studies, a random effects model was selected. Z values were transformed back to r values for interpretation of the results. Heterogeneity of effect sizes was calculated, using the Q and I² statistics. Q indicates whether sampling error contributed to effect sizes being significantly farther from the mean than would normally be expected. I² provides a percentage estimation of variation across studies
that may be due to actual heterogeneity, rather than chance (Higgins, Thompson, Deeks, & Altman, 2003).

**Results**

**Selection of Studies**

In total, 202 records were identified in the literature search. Of those, 44 were from PsychInfo, 28 from MedLine, 16 from CINAHL, 91 from Web of Science and 23 from PTSDPubs. A further publication was found from reference list screening. Forty duplicates were removed, and the remaining 163 articles were screened by title and abstract. From this screening, 123 articles were identified for exclusion, of which, 28 were qualitative studies, case studies, book chapters, or reviews; 49 did not have a quantitative measure of PTG and/or attachment; 22 studies did not have a traumatic event that met DSM-5 Criterion A; eight had a sample under 18 years of age; seven were excluded after contact with the author confirmed meeting exclusion criteria (correlation statistics were unavailable, total sample did not meet trauma criterion A); five were excluded after required data were unavailable from request to the first and second authors; four records were dissertations and were unavailable from the associated universities after applications for access. The remaining 40 articles were screened by full-text by two reviewers; four of which were brought to the third and fourth reviewer for a decision. The number of articles excluded at this stage amounted to 24. Of those, nine did not meet the DSM-5 criterion A for a traumatic event, one used a duplicate sample of another included paper (the study with the larger sample size was retained), one was a qualitative study, 12 were excluded after required data or information was unavailable after request to the first
and second author, and one was excluded because overall PTG score was unavailable after request to the corresponding author. Agreement between the two reviewers was high after full-text screen ($\kappa = .90$). Agreement between the third and fourth reviewers was also high ($\kappa = 1$). Study selection can be seen in Figure 1 below.

Figure 1. PRISMA diagram detailing selection of included articles (Moher, Liberati, Tetziaff, & Altman, 2009).
Sixteen studies were included in the review. Extracted data can be seen in table 1. These included 15 cross-sectional studies and 1 longitudinal study (Study no. 4), where correlation statistics were obtained from one time point. Studies were conducted in the following countries: The United Kingdom (UK; Study no. 1), the United States of America (USA; 2, 5, 6, 8, 9, 12, and 15), Israel (3, 4, and 7), Italy (10 and 11), Hungary (13), Australia (14), and China (16). A total of 3,042 participants were included, with studies having a mean sample size of 190.12 ($SD = 103.78$), and participants having a weighted mean age of 37.60 (range from 18 to 72 years, $M = 39.65$, $SD = 15.27$).

Quality Assessment

An appraisal of quality was conducted for included articles using the National Institute for Health and Care Excellence (NICE) Quality appraisal checklist-quantitative studies reporting correlations and associations (NICE, 2012). Detailed item-level scores and corresponding items can be viewed in Appendices A and B. Assessment was conducted independently by two reviewers and any disagreements were resolved by discussion. Agreement on the quality assessment was high ($\kappa = .81$). This assessment illustrates that overall study quality was high (++), indicating that efforts were made to minimise the risk of bias, such as using reliable and valid questionnaire measures, and considering the role of confounding variables. Studies no. 4 and 6 did not appear to have addressed all possible sources of bias. In study no. 4, the sample could be a source of potential bias in that participants were nominated by cancer survivors, and therefore the sample might represent a certain characteristic or demographic not controlled for. Predictor variables,
such as combat severity and reactions to captivity, were measured by scales created for the study, and therefore, did not display adequate psychometric properties. In study no. 6, the method of recruitment limited the sample to those help-seeking, and was therefore not representative of the wider population of survivors of cancer. Potential confounding variables, such as trauma characteristics, were not considered or controlled for. However, all other studies were evaluated as designed or conducted in such a way as to minimise bias (++; NICE, 2012). The results of the assessment are summarised in Table 1.
Table 1.

Summary of included studies.

<table>
<thead>
<tr>
<th>Study No.</th>
<th>Authors / Year</th>
<th>N</th>
<th>Country</th>
<th>Population; type of trauma</th>
<th>Design</th>
<th>Mean age (SD)</th>
<th>PTG Measure</th>
<th>α</th>
<th>Attachment measure; Subscales</th>
<th>α (subscales)</th>
<th>Correlation coefficients $r$</th>
<th>Quality Appraisal</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Arikan et al., (2015)</td>
<td>393</td>
<td>UK</td>
<td>University students; varied traumas</td>
<td>CS</td>
<td>20.30 (2.75)</td>
<td>PTGI .87</td>
<td>RQ; Anxiety, Avoidance</td>
<td>Anxious = .85 Avoidant = .92</td>
<td>PTGI<em>Anxious = .05 PTGI</em>Avoidant = .14**</td>
<td>(+++)</td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>Bratkovich (2010)</td>
<td>131</td>
<td>USA</td>
<td>University students; death of a loved one</td>
<td>CS</td>
<td>20.1 (1.2)</td>
<td>PTGI .95</td>
<td>RQ; Secure, Fearful</td>
<td>NR</td>
<td>PTGI<em>Secure = .23** PTGI</em>Fearful = .18*</td>
<td>(+++)</td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>Cohen &amp; Katz (2015)</td>
<td>148</td>
<td>Israel</td>
<td>Bereaved siblings</td>
<td>CS</td>
<td>34.38 (12.41)</td>
<td>HGRC Growth subscale .76 to .87</td>
<td>ECR; Anxious, Avoidance</td>
<td>Anxious = .87 Avoidant = .90</td>
<td>PTGI<em>Anxious = .16 PTGI</em>Avoidant = .30***</td>
<td>(+++)</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>Dekel, Mandl, &amp; Solomon (2011)</td>
<td>103</td>
<td>Israel</td>
<td>Ex-political prisoners of war (Ex-POWs); conflict-related traumatic events</td>
<td>L</td>
<td>NR</td>
<td>PTGI .94</td>
<td>AQ; Secure, Anxious, Avoidant</td>
<td>Secure = .70 Anxious = .79 Avoidant = .63</td>
<td>PTGI<em>Secure = .05 PTGI</em>Anxious = .16 PTGI*Avoidant = .04</td>
<td>(+)</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Gwynn (2009)</td>
<td>151</td>
<td>USA</td>
<td>University Students and Community sample; sexual assault</td>
<td>CS</td>
<td>21.13 (2.39)</td>
<td>PTGI .96</td>
<td>ECR; Anxious, Avoidant</td>
<td>Anxious = .91 Avoidant = .94</td>
<td>PTGI<em>Anxious = .03 PTGI</em>Avoidant = .07</td>
<td>(+++)</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Kim et al., (2008)</td>
<td>314</td>
<td>USA</td>
<td>Cancer Caregivers;</td>
<td>CS</td>
<td>56.50 (10.62)</td>
<td>BFS .95</td>
<td>MAQ; Secure,</td>
<td>Secure = .83 Husbands: PTGI*Secure = .24**</td>
<td>(+)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No.</td>
<td>Authors</td>
<td>N</td>
<td>Country</td>
<td>Description</td>
<td>Method</td>
<td>PTG</td>
<td>PTG*Secure</td>
<td>PTG*Anxious</td>
<td>PTG*Avoidant</td>
<td>PTG*Fearful</td>
<td>Description</td>
<td></td>
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<td>----------------------------------------------------------------------------</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>Levi-Belz &amp; Lev-Ari</td>
<td>131</td>
<td>Israel</td>
<td>Suicide-loss survivors; suicide of family/close friend</td>
<td>CS</td>
<td>40.7</td>
<td>.96</td>
<td></td>
<td></td>
<td></td>
<td>PTGI=Anx= -.01 PTGI=Avoidant=.11 Wives: PTGI=Secure=.30 *** PTGI=Anxious=.24 ** PTGI=Avoidant=.13</td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>Nelson et al., (2018)</td>
<td>292</td>
<td>USA</td>
<td>Adult survivors of Child Sexual Abuse (CSA)</td>
<td>CS</td>
<td>41.64</td>
<td>.94</td>
<td></td>
<td></td>
<td></td>
<td>PTGI=Secure=.46 *** PTGI=Anxious=.06 PTGI=Avoidant=-.18*</td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>Owens (2016)</td>
<td>229</td>
<td>USA</td>
<td>University students; varied events</td>
<td>CS</td>
<td>19.26</td>
<td>.94</td>
<td></td>
<td></td>
<td>.097</td>
<td>PTGI=Anxious=-.097 PTGI=Avoidant=-.028 PTGI=Fearful=.072 PTGI=Fearful=.028</td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>Romeo et al., (2019)</td>
<td>123</td>
<td>Italy</td>
<td>Breast cancer survivors</td>
<td>CS</td>
<td>54.30</td>
<td>.93</td>
<td></td>
<td></td>
<td></td>
<td>PTGI=Secure=.097 PTGI=Anxious=-.028 PTGI=Avoidant=-.072 PTGI=Fearful=.028</td>
<td></td>
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<tr>
<td></td>
<td>Study Reference</td>
<td>Sample Size</td>
<td>Country</td>
<td>Study Design</td>
<td>PTGI Mean (SD)</td>
<td>PTGI* Comparison</td>
<td>Range from</td>
<td>PTGI* Comparison</td>
<td>Notes</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td>Romeo et al., (2017)</td>
<td>108</td>
<td>Italy</td>
<td>Cross-Sectional</td>
<td>59.3 (7.8)</td>
<td>RQ: Secure, Anxious, Avoidant, Fearful</td>
<td>Range from .32 to .79 (Estimated from literature)</td>
<td>PTGI*Secure=.144</td>
<td>(++)</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>Schmidt et al., (2012)</td>
<td>54</td>
<td>USA</td>
<td>Cross-Sectional</td>
<td>53.8 (10.5)</td>
<td>MAQ: Secure</td>
<td>Range from .64 to .72</td>
<td>PTGI*Secure=.37 **</td>
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<td>Hungary</td>
<td>Cross-Sectional</td>
<td>59.1 (10.77)</td>
<td>ECR-SF; Anxious, Avoidant</td>
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<td>14</td>
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<td>35.00 (NR)</td>
<td>ECR; Anxious, Avoidant</td>
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<td>39.52 (12.84)</td>
<td>ECR</td>
<td>Anxious=.83 Avoidance=.82</td>
<td>PTGI*Anxious=.33 ***</td>
<td>(++)</td>
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</tbody>
</table>

Note: CS = cross-sectional design; L = Longitudinal design; NR= Not reported; *p<.05, **p<.01, ***p<.001; (++)= the study has been designed or conducted in such a way as to minimise the risk of bias (NICE, 2012); (+)= the study may not have addressed all potential sources of bias (NICE, 2012).
PTG AND ATTACHMENT STYLE

Meta-Analyses

Effect size for the relationship between secure attachment and PTG. For the relationship between secure attachment style and PTG, a random-effects meta-analysis of 8 studies (one study was split by gender of spouse) revealed a total effect size of 0.22, with a 95% Confidence Interval (CI) falling between 0.12 to 0.31 ($Z = 4.24; \ p < 0.001$). This represents a statistically significant small effect size, suggests that more securely attached individuals may experience greater PTG. The studies demonstrated medium-to-high heterogeneity, $Q = 25.56, \ p = .001$, with 68.7% of the variance in effect size due to between study variance, $I^2 = 68.70$, 95% CI [37.30, 84.38]. Figure 2 shows the forest plot for all included studies for this relationship. All studies demonstrated a positive relationship between secure attachment and PTG. The majority of studies fell within the small-to-medium correlation coefficient effect size range ($r = .46$ to $r = .05$), with Dekel, Mandl and Solomon (2011) and Wooloff (2014) demonstrating little to no significant effect. Schmidt et al.’s (2012) larger CI is due to the smaller sample size in this article, compared to others. Levi-Belz and Lev-Ari (2019) falls within the medium-to-large range. It was the only study directly targeting suicide loss.
Figure 2. Forest plot for the relationship between PTG and secure attachment by study, with effect sizes (ES) and % weight.

Effect size for the relationship between dismissive attachment and PTG. With regard to the relationship between dismissive attachment and PTG, a random effects meta-analysis of 13 studies (one study was split by gender of spouse) revealed a total small effect size of -0.12, with a 95% Confidence Interval from -0.17 to -0.08 (Z = -5.096, p < .001). This small negative correlation between the variables suggests that individuals with a dismissive attachment have a tendency to experience less PTG. Low heterogeneity was demonstrated, $Q = 18.15$, $p = 0.15$. Just over a quarter (28.39%) of the variance in effect size was due to variance between the studies, $I^2 = 28.39$, 95% CI [.00, 62.17]. All but two studies (Gwynn, 2009; Dekel, Mandl, & Solomon, 2011) demonstrated a negative relationship between dismissive attachment and PTG, and all fell within the small effect
PTG AND ATTACHMENT STYLE

size range for correlation coefficients ($r = -.30$ to $r = .07$). Gwynn (2009; Study no.5) and Dekel, Mandl, and Solomon (2011) demonstrated a non-significant correlation. Cohen and Katz (2015) falls within the medium range. This can be seen in Figure 3.

*Figure 3.* Forest Plot for the relationship between PTG and dismissive attachment by study, with effect sizes (ES) and % weight.

**Effect size for the relationship between preoccupied attachment and PTG.** Examination of the relationship between preoccupied attachment style and PTG included 13 studies (one study was split by gender of spouse) and demonstrated an extremely weak, non-significant relationship; $r = .01$ ($Z = 0.19$, $p = 0.85$), with a 95% CI for -0.08 to 0.09. These findings suggest a weak relationship between preoccupied attachment and PTG. High heterogeneity was revealed, $Q = 54.89$, $p < .0001$. The $I^2$ indicated that 76%
PTG AND ATTACHMENT STYLE

of the variance in correlational effect sizes can be explained by the variability between the included studies, \( I^2 = 76.32 \), 95% CI [60.35, 85.86]. Overall, there were inconsistencies in the direction of the relationship between preoccupied attachment and PTG, with 8 studies demonstrating a negative correlation, and 6 demonstrating a positive correlation, ranging from \( r = .33 \) to \( r = -.24 \). The highest percentage of studies fell within the range indicating a weak correlation between the variables. However, Xu et al. (2016) study fell within the small positive correlation range, and the wives in Kim et al.’s (2008) study fell within the small negative correlation range. These findings are presented in Figure 4.

![Figure 4. Forest Plot of the relationship between PTG and preoccupied attachment by study, with effect sizes (ES) and % weight.](image-url)
PTG AND ATTACHMENT STYLE

**Effect size for the relationship between fearful attachment and PTG.** Only three included studies reported and/or calculated the correlation statistics for fearful attachment and PTG. These studies all demonstrated a positive relationship, ranging from $r = .03$ to $r = .18$, where the overall effect size was 0.11, with a 95% CI from 0.01 to 0.22 ($Z = 2.15$, $p = .03$). This indicates a small effect size, suggesting that individuals with a fearful attachment may experience some PTG. The studies demonstrated low heterogeneity, $Q = 1.51$; $p = 0.4$, with 0% of the variance in effect size due to variance between studies, $I^2 = .00$, 95% CI [.00, 95.55]. However, the small number of studies included in this meta-analysis reduces the generalisability and reliability of this deduction. This can be seen in Figure 5.

**Figure 5.** Forest Plot of the relationship between PTG and fearful attachment, with effect sizes (ES) and % weight.

**Publication Bias**
Funnel plots for each of the meta-analyses demonstrated some publication bias, yet not all correlation coefficients included in the review showed statistical significance, so this bias may not be excessive. These can be seen in more detail in Appendix A.

Discussion

Overview of results

A systematic literature search of five databases, and the application of the inclusion and exclusion criteria, resulted in 16 studies meeting eligibility for inclusion in the review. This was a smaller number than expected considering the growth of research in the area. Many of the screened studies did not meet inclusion criterion number 3, with some studies surveying PTG among populations whose adverse experience could not be classified as a traumatic event. While loosening this criterion would have resulted in the inclusion of more studies, it was considered that this would have compromised review quality, as to experience PTG, an individual is required to have experienced a traumatising event (Tedeschi & Calhoun, 2004). Many also did not report the correlation statistics for overall PTG and the attachment subscales, necessary for the conduction of the meta-analysis.

The meta-analysis of eight studies for secure attachment and PTG revealed a significant small positive relationship, suggesting that securely attached individuals may be likely to experience PTG. Yet the relationship between the two variables is small. This finding was consistent with all included studies, with the exception of one which showed a positive medium correlation. All studies ranged from nearly zero, to a moderate-to-strong relationship. The positive relationship is in line with the findings of Salo,
PTG AND ATTACHMENT STYLE

Quota, and Punamaki (2005), and the consensus that securely attached individuals may be more likely to experience PTG (Mikulincer, Shaver & Horesh, 2006), but this association is small.

The relationship between PTG and dismissive attachment was demonstrated through a significant small negative correlation of 13 studies, suggesting that dismissively attached individuals may be less likely to experience PTG. All but two of the included studies demonstrated a negative relationship. The representation of a negative correlation between dismissive attachment and PTG is consistent with findings in other studies (Lev-Ari & Levi-Belz, 2019; Yu, He, Xu, Wang, & Prigerson, 2016), but again the current findings suggest the relationship is small, indicating that dismissive attachment may play only a minor role in reduced PTG.

As for preoccupied attachment, meta-analysis of 13 studies did not reveal a significant relationship, suggesting that, for preoccupied individuals, attachment may not be an indicator of their likelihood of experiencing PTG. This finding may be due to the variations in correlation coefficients, with eight of the included studies demonstrating a negative relationship, and six revealing a positive relationship. All of these relationships were in the small range, with small relationships also demonstrated in other studies (Dekel, 2007; Lev-Ari & Levi-Belz, 2019; Noy, Taubman-Ben-Ari, & Kuint, 2013).

Only three studies reported the correlation between PTG and fearful attachment and a small significant positive relationship was found, suggesting that individuals with fearful attachment may experience some PTG. However, the correlations were modest and the small number of studies in this particular meta-analysis suggests that caution be exercised
PTG AND ATTACHMENT STYLE

when interpreting findings. Other research reported a small negative relationship between the two variables (Lev-Ari & Levi-Belz, 2019), which was not consistent with the result found here.

Assessment tools broadly consider only three attachment categories (Brennan, Clark, & Shaver, 1998; Carver, 2013). The Relationship Questionnaire (RQ; Bartholomew & Horowitz, 1991) measures four attachment styles, including the category of fearful attachment. The limited representation of this category in the current review may be related to the attachment measures used, and greater endorsement of tools assessing only three attachment styles. It may also be considered in light of issues with its conceptualisation as an attachment category (Green & Goldwyn, 2002). The conceptualisation of fearful, or unresolved, attachment as presenting with disorganised characteristics may make the measure of this subtype difficulty, in terms of internal consistency. The three studies who provided a correlation coefficient for fearful attachment and PTG, and were included in that meta-analysis, did not report internal consistency statistics for that subscale. Other studies measuring attachment using the RQ (no. 1, 7, & 15), also did not report the correlation statistics for the fearful subscale and overall PTG.

The meta-analyses indicate that the association between attachment styles and PTG is significant but modest. Further exploration of the relationship between the two variables is warranted, in order to fully understand the associated psychological processes. A correlational relationship alone may be reductionist. The association may be better represented with a moderating variable, such as social support, as is
PTG AND ATTACHMENT STYLE

presented in some of the literature (Volgin & Bates, 2016; Wu & Yang, 2012; Tedeschi & Calhoun, 2004).

**Interpretation of Findings**

Tedeschi and Calhoun (2004) emphasise the role of social support in their theoretical model of the development of PTG. Social support is hypothesised to facilitate deliberate rumination, which aids trauma processing (Schroevers, Helgeson, Sanderman, & Ranchor, 2010). It has been suggested that attachment style can influence the perception and seeking of social support (Kafetsios & Sideridis, 2006). For example, a securely attached individual is able to initiate social connection and source comfort from another in times of adversity (Wu & Yang, 2012). This may help to explain the positive correlation between secure attachment and PTG, as securely attached adults are more likely to effectively use social support, which may foster PTG. As for the small negative correlation between dismissive attachment and PTG, this may also be related to the moderating role of social support, as dismissive individuals favour self-reliance and independence, and are therefore more likely to use distancing strategies from others in response to adverse events (Lynch, 2013; Kafetsios & Sideridis, 2006; Wu & Yang, 2012). Considering the mechanisms of change in PTG, this would posit that adults high on dismissive attachment are less likely to utilise social support after trauma and are more likely to avoid or suppress negative emotions (Ein-Dor et al., 2010). Therefore, this prevents processing of the traumatic event (Schroevers, Helgeson, Sanderman, & Ranchor, 2010). This may reinforce posttraumatic stress symptoms, and potentially inhibit the emergence of PTG (Ein-Dor et al., 2010).
PTG AND ATTACHMENT STYLE

moderating impact of social support between both secure and dismissive attachment style and PTG is worthy of further investigation.

Preoccupied individuals are more likely to engage in high intensity attempts to obtain support in times of challenge (Ein-Dor et al., 2010; Volgin & Bates, 2016). This tends to be inefficient at meeting their needs, as others cannot continually substitute as an effective self-regulation mechanism, so an association with PTG may be inhibited. This may be why a weak relationship was indicated between preoccupied attachment and PTG. However, the introduction of adequate social support may moderate this relationship, and influence the likelihood of PTG (Mikulincer & Florian, 1997).

A further consideration is that preoccupied individuals' negative self-concept and lower self-esteem (Bartholomew & Horowitz, 1991) may inhibit experience of the individual domains of PTG, for example, a new appreciation of life, new possibilities, and a sense of personal strength (Tedeschi & Calhoun, 1996). These individuals are also likely to demonstrate hypervigilance and attentional bias to threat-related information in the environment (Mikulincer & Shaver, 2007), therefore perpetuating symptoms of PTSD. The association between attachment preoccupation and elevated distress after trauma, the inefficient or inconsistent use of social support and difficulties with self-regulation and interdependence, may impact the likelihood of a relationship with PTG.

Individuals with fearful, or unresolved attachment, may utilise social support in patterns borrowed from both anxious and avoidant attachment styles (Adams, Wrath, & Merg, 2018; Crittenden, 1988). These individuals oscillate between a need for interpersonal closeness, and a rejection of it due
PTG AND ATTACHMENT STYLE

to fear of the untrustworthiness of others (Main & Solomon, 1990). Following a traumatic event, these individuals may sabotage interpersonal relationships in their attempts to manage distress (Adams, Wrathm & Merg, 2018). This, coupled with a heightened difficulty with affect regulation and negative concept of self and others, may increase likelihood for the development of PTSD (Ehlers & Clark, 2000; Main & Solomon, 1990). From this review, it may be suggested that these individuals have a slightly increased likelihood of experiencing PTG. This may be related to their greater propensity to experience distress, which is curvilinearly related to PTG (Shakespeare-Finch & Lurie-Beck, 2014; Achterhof et al., 2018). Individuals with fearful attachment may be likely to experience moderate to severe PTSD (Pascuzzo, Moss, & Cyr, 2015), relating to higher PTG. Fearful individuals also have a tendency to experience social relationships that are of higher intensity (Adams, Wrath, & Merg, 2018), therefore utilising social supports in a heightened way.

Studies examining PTG and attachment styles are currently hamstrung by several methodological limitations. For example, only five included studies measured PTSD, a factor demonstrated to impact PTG (Shakespeare-Finch & Lurie-Beck, 2014). Similarly, only three studies reported whether or not participants were engaged in psychological therapy, an established confounding variable in the exploration of PTG (Calhoun & Tedeschi, 1998). As for measures of attachment, there was significant variance in the measures used to assess attachment. Psychometric properties for all measures were either reported in the study or documented in the literature base. However, Cronbach’s alpha for some subscales were
PTG AND ATTACHMENT STYLE

not above the recommended cut-off of 0.7 (Nunnally, 1978) for internal consistency (e.g., Dekel, Mandl, & Solomon, 2011; Kim et al., 2008). As discussed above, many studies do not classify the experience of a traumatic event as an inclusion criteria, therefore bringing the reliability of the measurement of PTG into question.

Regarding the current study, it was strengthened by the inclusion of unpublished literature (e.g., dissertations), and the quality assessment demonstrated a low risk of publication bias in included studies. Heterogeneity was demonstrated in the characteristics of included studies, in terms of populations, cultures, and types of traumas experienced, demonstrating greater external validity. Yet, generalizability may be of concern especially for fearful attachment where only three could be included. Even the analysis for secure attachment was limited to eight sound studies that met inclusion. Thus, the findings from the secure and fearful attachment analyses may not be as robust as those of dismissive and preoccupied, where 13 studies each were included. Beyond the development of methodologically rigorous studies, future research should examine variables thought to impact the relationship between PTG and attachment style (e.g., trauma type, social support, culture). Fearful attachment is also significantly underrepresented in the literature in this area, and this warrants attention.

Conclusion

This review demonstrated a small positive effect of secure attachment, a small positive effect of fearful attachment, and a small negative effect of dismissive attachment, on PTG. A weak relationship was found between preoccupied attachment and PTG. Attachment styles may make a small
PTG AND ATTACHMENT STYLE

contribution to PTG and assessment of client attachment style is likely to be of benefit in guiding intervention strategies that facilitate movement from traumatic stress to traumatic growth.
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PTG AND ATTACHMENT STYLE

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PTG AND ATTACHMENT STYLE


PTG AND ATTACHMENT STYLE


PTG AND ATTACHMENT STYLE

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PTG AND ATTACHMENT STYLE


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PTG AND ATTACHMENT STYLE


PTG AND ATTACHMENT STYLE


PTG AND ATTACHMENT STYLE


PTG AND ATTACHMENT STYLE

## Section 2: Technical Appendix for the Systematic Review

### Appendix A. Quality Appraisal Item-Level Scores

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<th>Section 2: Method of Selection</th>
<th>Section 3: Outcomes</th>
<th>Section 4: Analysis</th>
<th>Section 5: Summary</th>
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**Appendix B. Quality Appraisal Checklist- Items**

### Section 1: Population

1.1 *Is the source population or source area well described?*

- Was the country (e.g. developed or non-developed, type of health care system), setting (primary schools, community centres etc), location (urban, rural), population demographics etc adequately described?

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1.2 *Is the eligible population or area representative of the source population or area?*

- Was the recruitment of individuals, clusters or areas well defined (e.g. advertisement, birth register)?
- Was the eligible population representative of the source? Were important groups underrepresented?

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*Note:* ++ = aspect of study design conducted or designed in a way as to minimise risk of bias; + = not all potential sources of bias for that aspect of study design had been addressed; − = significant source of bias may exist; NR = Not reported; N/A = Not applicable to the types of studies included.
### 1.3 Do the selected participants or areas represent the eligible population or area?

- Was the method of selection of participants from the eligible population well described?
- What % of selected individuals or clusters agreed to participate? Were there any sources of bias?
- Were the inclusion or exclusion criteria explicit and appropriate?

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### Section 2: Method of Selection

#### 2.1 Selection of exposure (and comparison) group. How was selection bias minimised?

- How was selection bias minimised?

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#### 2.2 Was the selection of explanatory variables based on a sound theoretical basis?

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2.3 Was the contamination acceptably low?

- Did any in the comparison group receive the exposure?
- If so, was it sufficient to cause important bias?

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2.4 How well were likely confounding factors identified and controlled?

- Were there likely to be other confounding factors not considered or appropriately adjusted for?
- Was this sufficient to cause important bias?

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### 2.5 Is the setting applicable to the UK?
- Did the setting differ significantly from the UK?

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### Section 3: Outcomes

#### 3.1 Were the outcome measures and procedures reliable?
- Were outcome measures subjective or objective (e.g. biochemically validated nicotine levels ++ vs self-reported smoking −)?
- How reliable were outcome measures (e.g. inter- or intra-rater reliability scores)?
- Was there any indication that measures had been validated (e.g. validated against a gold standard measure or assessed for content validity)?
### 3.2 Were the outcome measurements complete?

- Were all or most of the study participants who met the defined study outcome definitions likely to have been identified?

### 3.3 Were all the important outcomes assessed?

- Were all the important benefits and harms assessed?
- Was it possible to determine the overall balance of benefits and harms of the intervention versus comparison?

### 3.4 Was there a similar follow-up time in exposure and comparison groups?

- If groups are followed for different lengths of time, then more events are likely to occur in the group followed-up for longer distorting the comparison.
- Analyses can be adjusted to allow for differences in length of follow-up (e.g. using person-years).

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<th>3.5 Was follow-up time meaningful?</th>
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<tr>
<td>• Was follow-up long enough to assess long-term benefits and harms?</td>
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**Section 4: Analysis**

4.1 **Was the study sufficiently powered to detect an intervention effect (if one exists)?**

- A power of 0.8 (i.e. it is likely to see an effect of a given size if one exists, 80% of the time) is the conventionally accepted standard.

- Is a power calculation presented? If not, what is the expected effect size? Is the sample size adequate?

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<th>4.2 Were multiple explanatory variables considered in the analyses?</th>
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<th>4.3 Were the analytical methods appropriate?</th>
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<th>4.4 Was the precision of association given or calculable? Is association meaningful?</th>
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<td>• Were confidence intervals or p values for effect estimates given or possible to calculate?</td>
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• Were CIs wide or were they sufficiently precise to aid decision-making? If precision is lacking, is this because the study is under-powered? | NR  
| NA

**Section 5: Summary**

5.1 **Are the study results internally valid (i.e. unbiased)?**

• How well did the study minimise sources of bias (i.e. adjusting for potential confounders)?

• Were there significant flaws in the study design?

5.2 **Are the findings generalisable to the source population (i.e. externally valid)?**

• Are there sufficient details given about the study to determine if the findings are generalisable to the source population?

• Consider: participants, interventions and comparisons, outcomes, resource and policy implications.
Appendix C. Funnel Plots to Indicate Publication Bias

Figure 1. Funnel plot for the relationship between PTG and secure attachment.

Figure 2. Funnel plot for the relationship between PTG and preoccupied attachment.
Figure 1. Funnel plot for the relationship between PTG and dismissive attachment.

Figure 1. Funnel plot for the relationship between PTG and fearful attachment.
Section 3: Author Guidelines for The journal of Clinical Psychology

Title Page
The title page should contain:

- A brief informative title containing the major key words. The title should not contain abbreviations (see Wiley's best practice SEO tips);
- A short running title of less than 40 characters;
- The full names of the authors;
- The author's institutional affiliations where the work was conducted, with a footnote for the author’s present address if different from where the work was conducted;

Main Text File
For journals operating a double-blind peer review process, please ensure that all identifying information such as author names and affiliations, acknowledgements or explicit mentions of author institution in the text are on a separate page.

The main text file should be in word or PDF format and include:

- A short informative title containing the major key words. The title should not contain abbreviations
- The full names of the authors with institutional affiliations where the work was conducted, with a footnote for the author’s present address if different from where the work was conducted;
- Abstract structured (objective(s)/methods/results/conclusion)
- Up to six keywords;
- Main body:
  1. regular section formatted as introduction, materials & methods, results, discussion, conclusion
  2. In Session (invitation only) formatted as introduction, Case Illustration (including separate sections on Presenting Problem & Client Description, Case Formulation, Course of Treatment, Outcome and Prognosis), Clinical Practices and Summary, and Selected References & Recommended Readings
- References (for In Session, please provide no more than 20 references);
- Tables (each table complete with title and footnotes);
- Figures: Figure legends must be added beneath each individual image during upload AND as a complete list in the text.

Reference Style
This journal uses APA reference style. Find more information on reference style guidelines here.

Figures and Supporting Information
Figures, supporting information and appendices should be supplied as separate files. Click here for the basic figure requirements for figures submitted with manuscripts for peer review, as well as the more detailed post-acceptance figure requirements. Click here for Wiley’s FAQs on supporting information.
2. ARTICLE TYPES

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Peer Review
This journal operates under a double-blind peer review model. You can read more about peer review model here. Papers will only be sent to review if the Editor-in-Chief determines that the paper meets the appropriate quality and relevance requirements. In-house submissions, i.e. papers authored by Editors or Editorial Board members of the title, will be sent to Editors unaffiliated with the author or institution and monitored carefully to ensure there is no peer review bias.

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This journal uses iThenticate’s CrossCheck software to detect instances of overlapping and similar text in submitted manuscripts. Read Wiley’s Top 10 Publishing Ethics Tips for Authors here. Wiley’s Publication Ethics Guidelines can be found here.
Section 4: Large Scale Research Project

Psychological Therapy and Trauma Appraisals Explain the Predictive Relationship Between Posttraumatic Stress and Posttraumatic Growth in Adults Exposed to Traumatising Events

Amanda Gleeson¹, Dr. David Curran¹, Dr. Jane Simms², Dr. Kevin Dyer¹, Dr. Shelley Fletcher¹, and Dr. Donncha Hanna¹

1: Queen’s University Belfast
2: South Eastern Health and Social Care Trust

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Email: donncha.hanna@qub.ac.uk.
Abstract

Objective

This study examined a model of predictors of posttraumatic growth in a sample of 85 trauma-exposed adults. It sought to establish the predictive relationship between posttraumatic stress and growth, and whether this was impacted by trauma-related factors (trauma typology, time since most distressing trauma), demographic characteristics (age, gender and number of psychological therapy sessions) and trauma appraisals (betrayal, self-blame, fear, alienation, anger and shame).

Method

A quantitative survey methodology was employed in this cross-sectional study. Participants were 56 males and 28 females, with a mean age of 48.26 years, recruited from psychological support services in Northern Ireland. Participants had experienced an average of 4.11 traumatising events.

Results

Hierarchical multiple regression modelling was used to analyse predictors. This demonstrated that the number of psychological therapy sessions participants had attended ($\beta = .33, p = .009$) and betrayal-based trauma appraisals ($\beta = .47, p = .001$) were positive predictors of posttraumatic growth. Shame-based appraisals negatively predicted posttraumatic growth ($\beta = -.42, p = .020$). In the final model, posttraumatic stress, trauma-related factors, age, gender, and four of the six trauma appraisals were non-significant predictors.

Conclusion
The predictive relationship between posttraumatic stress and growth may be better explained by the number of psychological therapy sessions the participant has had, and appraisals of betrayal and shame.

**Key Words**

Posttraumatic growth, posttraumatic stress, trauma, adults, psychological therapy, trauma appraisals

**Clinical Impact Statement**

This study aimed to establish the predictive relationship between posttraumatic stress and posttraumatic growth in a sample of trauma-exposed adults, and examine if trauma-related factors, demographic variables, and trauma appraisals impacted this relationship. The number of psychological therapy sessions participants had attended, and appraisals of betrayal and shame were shown to be better predictors of posttraumatic growth than posttraumatic stress, trauma-related factors, and demographic characteristics.
Exposure to traumatic events is often associated with poorer psychological outcomes, including posttraumatic stress disorder (PTSD; Martin, Cromer, DePrince, & Freyd, 2013). While research exploring the psychological reactions to adverse events has focused on psychopathological outcomes, an emerging evidence-base is demonstrating that survivors of trauma can also experience psychological benefit. Posttraumatic growth (PTG; Tedeschi & Calhoun, 1996) is one of the phenomenon proposed to explain individuals’ positive adaptations to highly adverse events. It describes positive psychological change emerging from the struggle to cope with adversity. Calhoun and Tedeschi (1996) propose that this form of growth can be experienced in five domains: 1) improved interpersonal relating to others; 2) a sense of personal strength; 3) realisation of new possibilities or priorities; 4) spiritual change; and 5) a new appreciation of life (Tedeschi & Calhoun, 2006). The authors emphasise the psychological struggle necessary for PTG to occur, suggesting that a shattering of schemata relating to self and the world may be antecedent to the emergence of PTG (Janoff-Bulman, 1992; Tedeschi & Calhoun, 2004). Tedeschi (1999) illustrates that schema violation and disruption encourages an individual to try to cognitively rebuild assumptions and make sense of their distress. Initially this is an intrusive process, becoming more deliberate over time (Tedeschi, 1999).
The necessity of psychological distress to facilitate the emergence of PTG has led to the exploration of posttraumatic stress (PTS) as a predictor (Lancaster, Klein, Nadia, Szabo, & Mogerman, 2015; Achterhof et al., 2018). Significant support has been established for an intermediate optimum, with the greatest level of PTG occurring at intermediate levels of PTS (Shakespeare-Finch & Lurie-Beck, 2014; Butler et al., 2005). Shakespeare-Finch and Lurie-Beck concluded this in their 2014 review, emphasising a quadratic, or curvilinear, relationship as representing the association between PTS and PTG. Schubert, Schmidt and Rosner (2016) evidenced that trauma survivors with PTSD tended to exhibit more PTG, than those without PTSD. This, however, was less conclusive among clinical samples. Subsequent literature has demonstrated the variability in this relationship. Achterhof et al. (2018) explored the relationship between PTS and PTG at two time points, and found that in the more immediate aftermath of the event, a quadratic relationship between PTS and PTG was demonstrated. However, at the later time point, PTS was a greater linear predictor of PTG (Achterhof et al., 2018). Therefore the relationship between these variables may be influenced by other factors, such as time. This was empirically demonstrated by Blix, Birkeland, Hansen and Heir (2016).

PTG has been evidenced among a variety of trauma populations (Linley & Joseph, 2004), including survivors of cancer (Romeo et al., 2019; Tanyi et al., 2015), single-event traumas (Cryder, Kilmer, Tedesci, & Calhoun, 2006; Butler et al., 2005), and interpersonal events (Nelson, Hagedorn, & Lambie, 2018). Northern Ireland, as a region, has a significant history of societal trauma, following the 30 year “Troubles” conflict (Ferry,
Bolton, Bunting, O’Neill, & Murphy, 2010). While research in Northern Ireland has predominantly focused on the pathogenic outcomes of the political conflict, incidence of other traumas, such as interpersonal trauma, remains high (McGavock & Spratt, 2014; Dorahy et al., 2009). Trauma typology has been evidenced to explain some of the variance in PTG (Schubert, Schmidt, & Rosner, 2016), with the suggestion that interpersonal trauma (e.g., childhood abuse, domestic violence) is associated with a reduced likelihood of PTG, when compared to non-interpersonal trauma (e.g., serious accident, natural disaster; Shakespeare-Finch & Armstrong, 2010). This may be due to the higher levels of PTS among survivors of interpersonal events (Shakespeare-Finch & Armstrong, 2010; Frans, Rimmo, Aberg, & Fredrikson, 2005), suggesting that trauma typology may influence the predictive relationship between PTS and PTG. Much of the literature on PTG in samples affected by interpersonal events, have not explored the variance in PTG explained by that event (Nelson, Hagedorn, & Lambie, 2018; Ullman, 2014). Similarly, among samples who have experienced a variety of events, it is unclear whether the experience of an interpersonal trauma predicts likelihood of PTG, when compared to other events. Interpersonal trauma, as a typology, is associated with poorer psychosocial outcomes (Dorahy et al., 2009), and therefore, understanding the likelihood of benefit from PTG after such an event is warranted.

In order to estimate further who may be more likely to experience PTG, researchers have tried to understand the influence of stable demographic variables, such as age and gender (Achterhof et al., 2018). In adult samples, PTG has shown to be negatively impacted by age, suggesting
that young adults are the age group most associated with it (Achterhof et al., 2018; Bellizzi, 2004). However, this has received varying support, with others suggesting no effect of age on PTG (Powell, Butollo, Tedeschi, & Calhoun, 2003). Gender has also been proposed to influence posttraumatic reactions, with females less likely than males to experience a traumatic event, but more likely than males to meet criteria for PTSD (Tolin & Foa, 2006). It has been indicated that females have a greater propensity towards PTG (Vishnevsky, Cann, Calhoun, Tedeschi, & Demakis, 2010; Marshall, Frazier, Frankfurt, & Kuijer, 2015). Considered alongside the support for a negative effect of age, this suggests that young adult females may be the demographic most likely to report PTG after a traumatising event (Achterhof et al., 2018). In contrast, there is also evidence that PTG can increase with age in females. Vishnevsky and colleagues (2010) demonstrated in their meta-analytic review that despite females’ greater likelihood of reporting PTG than males, this increased with age.

Tedeschi and Calhoun (2004) emphasise the process of deliberate sense-making over time in supporting the emergence of PTG. Therefore it is perhaps unsurprising that PTG may be enhanced through psychological therapy (Tedeschi & Cahloun, 2004; Schubert, Schmidt, & Rosner, 2016). PTG has been incorporated into trauma-focused interventions for PTS (Courtois, 2004), but there is limited exploration of the role of psychological therapy in the empirical PTG literature. Engagement with psychological therapy may influence trauma survivors’ PTS, therefore explaining some variance in PTG. Tedeschi and Calhoun (2004) emphasise meaning-making and schema rebuilding occurring over time, suggesting that PTG may be
enhanced as therapy progresses. Courtois (2004) advises the incorporation of PTG in the later stage of trauma-focused therapy. Considered along-side the evidenced dose-effect of psychotherapy in adults (Robinson, Delgadillo, & Kellett, 2019), the number of therapeutic sessions an individual has had, may contribute to PTG. The importance of this when studying predictors of PTG in clinical samples becomes apparent, particularly in those assessing the effect of PTS on PTG.

Blix, Hansen, Birkeland, Nissen, and Heir (2013) suggested that among factors proposed to underlie the association between PTS and PTG, more research was required into forms of cognitive processing (Blix et al., 2013). Trauma survivors’ assessment of their thoughts, feelings, and behaviours in response to exposure has been strongly linked to psychological outcomes (DePrince, Chu, & Pineda, 2011; Martin et al., 2013). Cognitive processes have been emphasised by Tedeschi and Calhoun (2004) as integral in the development of PTG in order to facilitate the rebuilding of shattered schemata. Research has explored the role of posttraumatic cognitions in PTG (Schubert, Schmidt, & Rosner, 2016), with positive posttraumatic cognitions evidenced as particularly influential (Moser, Hajcak, Simons, & Foa, 2007). Much of the literature has compared categories of positive and negative posttraumatic cognitions, using the Posttraumatic Cognitions Inventory (Foa, Ehlers, Clark, Tolin, & Orsillo, 1999). DePrince and colleagues (2010) developed the Trauma Appraisal Questionnaire to measure specific appraisals following a traumatising event, and identified six as the most salient: betrayal, self-blame, fear, alienation, anger and shame (DePrince et al., 2010). These appraisals are inherent in
the assessment, formulation and treatment of PTS, due to their centrality in emotional responses to traumatic events (Ehlers & Clark, 2000; DePrince, 2005). No study has yet explored the association of these appraisals with PTG, and due to their role in complex psychological responses to traumatic events (Mitchell et al., 2020), this warrants assessment.

The theoretical model of PTG outlines how a number of these factors may be salient. Tedeschi and Calhoun (2004) emphasise that manageable distress may precipitate PTG by facilitating ruminative processes. PTS may therefore support the cognitive processing necessary for its emergence. This event-related processing occurs over time, as survivors progress through involuntary and deliberate event-related rumination (Martin & Tesser, 1996). Tedeschi and Calhoun (2004) illustrate the seismic nature of events in challenging individuals’ assumptions of controllability, safety and identity, with interpersonal trauma providing the opportunity for this to occur (Dorahy et al., 2009). This shattering of assumptions encourages a highly affective disengagement from previous schemata and the subsequent integration of the trauma into newly built representations (Parkes, 1971; Tedeschi & Calhoun, 2004). This occurs through cognitive restructuring and processing, therefore likely facilitated through psychological intervention (Schubert, Schmidt, & Rosner, 2016), such as those focusing on trauma-processing and life reintegration (Courtois, 2004). PTG also requires cognitive flexibility, and is why Tedeschi and Calhoun (2004) propose that likelihood of PTG may decline with age (Wecker, Kramer, Hallam, & Delis, 2005). Ehlers and Clark (2000) discuss the affective nature of event-related appraisals in the development of posttraumatic distress, such as those related to shame and
self-blame. This affective cognitive processing has been highlighted as a characteristic process in the development of PTG (Tedeschi & Calhoun, 2004). Therefore, trauma appraisals with a highly affective component may be influential in the development of PTG.

Based on previous literature, the present investigation aimed to assess a holistic model of predictors of PTG in a sample of trauma-exposed adults. The predictive relationship between PTS and PTG is inconclusive among clinical samples, and may be influenced by salient factors, such as trauma typology and time since the event. Variance in PTG may be explained by the experience of interpersonal events, which has received limited focus in the PTG literature. Stable demographic variables, such as age and gender, warrant exploration as limited consensus is gained from the literature base with regard to who may be most likely to experience PTG. The proposed role of psychological therapy in the facilitation of PTG highlights the importance of considering the number of sessions the participant has attended in the surveying of PTS and PTG among clinical samples. The lack of investigation of the role of trauma appraisals highlights a major gap in the PTG literature, while cognisant of their role in the development of PTS. Therefore, based on inconsistencies in the literature and the theoretical model of PTG, it is considered that the exploration of PTS as a predictor of PTG should also consider the role of the above variables.

In light of this, the present study investigated a model of predictors of PTG in a trauma exposed sample. It aimed to establish whether PTS predicted PTG, and whether this was impacted by the following predictor variables: trauma-related factors (the experience of an interpersonal event
and time since this event); demographic factors (age, gender and number of psychological therapy sessions); and trauma appraisals (betrayal, self-blame, fear, alienation, anger and shame).

Method

Participants
The sample consisted of 85 trauma-exposed adults. The sample size was estimated by an a-priori power calculation using G*Power Version 3.1.9.5 (Faul, Erdfelder, Buchner, & Lang, 2009; Appendix A) for a linear regression; $R^2 = .25$ (Dahm et al., 2015), $\alpha = .05$, with 12 predictors. A sample size of 81 was indicated (power = .80). 10% was added to allow for non-completion of questionnaire items and drop-out, resulting in a recruitment aim of 89.

Participants were recruited as an opportunity sample from four psychological therapy services in Northern Ireland. Three of the services were health-service based, and one was a community and voluntary organisation. Participants were considered to meet inclusion criteria if they were attending a clinician in one of the involved services, 18 years or over, and had experienced at least one traumatic event in their lifetime. Anyone considered by their clinician to have active suicide risk were excluded from participating.

In terms of psychological therapies being received, 50.7% attended counselling/psychotherapy, 29% attended cognitive-behavioural therapy, 17.4% engaged in more than one approach, 1.4% attended a group-based intervention, and 1.4% engaged in Eye Movement Desensitisation and Reprocessing (EMDR).

Design
This community-based cross-sectional study employed survey methodology, with data collection conducted using a battery of self-report questionnaires (See Appendix B). The project was approved by Health and Social Care Research Ethics Committee A (HSC RECA), Northern Ireland, on 21st May 2019. Data collection was conducted between 11th October 2019 and 28th February 2020.

**Procedure**

Clinicians in the four psychological support services identified any individuals on their caseloads who met inclusion criteria, and provided them with an information pack, containing an information sheet and reply slip (See Appendix C). Individuals interested in participating, opted in by completing a reply slip, and were subsequently contacted by a researcher to arrange participation. Full informed consent was obtained time of data collection (See Appendix D). Questionnaires were completed on site in the psychological service, with an independent researcher, who was a trainee clinical psychologist. A distress protocol was used if required (See Appendix E).

**Measures**

A demographic/clinical information questionnaire was developed for the study. It captured information on age, gender, marital status, education history, employment status, type of psychological intervention, and number of therapy sessions attended.

The Posttraumatic Growth Inventory-Short Form (PTGI-SF; Cann et al., 2010), was used to measure PTG in the sample. It is a 10-item scale; a shortened version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996); measuring overall posttraumatic growth, with five subscales
measuring each domain. Participants responded to statements on a 6-point scale, 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 Posttraumatic Stress Disorder Checklist Version 5 (PCL-5; Weathers, Litz, Keane, Palmieri, Marx, & Schnurr, 2013) is a standardised 20-item measure of PTS severity. Participants were asked to indicate the degree to which they were bothered by a range of symptoms in the last month, with responses ranging from 0- “Not at all” to 4- “Extremely”.

The Posttraumatic Diagnostic Scale, Part 1 and 2 (PDS; Foa, Cashman, Jaycox, & Perry, 1997) is a self-report measure assessing severity of PTSD symptoms based on a specific event. The current study utilised two of the four sections in order to assess trauma history; Part 1 is a checklist of 12 traumatic events, where participants are asked to indicate whether they have experienced the events. If indicating experience of more than one, participants were asked to report, in Part 2, which event ‘bothers them the most’, and when it occurred. In order to measure Northern Ireland conflict-related events, an item assessing this, based on previous research (Bunting et al., 2013), was added to both Part 1, and Part 2. In order to facilitate exploration of the effect of interpersonal trauma on PTG, participants were categorised by their reported most distressing event. Participants were initially grouped by their reported most distressing event to reduce the number of trauma categories and facilitate description of the sample; 1) Northern Ireland “Troubles”-related event, 2) an interpersonal event (e.g. emotional abuse, neglect, physical abuse, and/or sexual abuse; Mauritz, Goosesens, Draijer, & van Achterberg, 2013), 3) accident, 4) death, and 5)
life-threatening illness. A binary variable was then created, of those who reported an interpersonal trauma as their most distressing event, and those who reported all other trauma categories as their most distressing (“Troubles”-related event, accident, death, life-threatening illness). Time since this event was also grouped into a binary variable (more than 5 years, and less than 5 years), to aid analysis.

The 54-item Trauma Appraisal Questionnaire (TAQ; DePrince, Zurbriggen, Chu, & Smart, 2010) was used to measure appraisals associated with traumatic events. Participants were asked how they thought and felt when they considered an event. In the current study, participants were requested to be cognisant of their most distressing event from the PDS Part 2. Responses range from 1- “strongly disagree”, to 5- “strongly agree”. The scale has six subscales, measuring six types of trauma appraisals: betrayal, self-blame, fear, alienation, anger and shame.

Analyses

Analyses were conducted using IBM SPSS Version 26. Missing items were dealt with in analysis by excluding cases pairwise.

After conducting exploratory analysis on the data, it was established whether severity of PTS better predicted PTG linearly or curvilinearly. A hierarchical multiple regression was conducted with PTS as a predictor of PTG. At the initial step of this regression, PTS was entered linearly, and its square products were entered at the second stage. It was considered that if the square products added a significant amount of variance to the linear model it would suggest that the quadratic model would be most appropriate. For the exploratory model of predictors, a subsequent hierarchical multiple
regression was employed, with potential predictors of PTG entered in steps. Step one assessed the ability of PTS (linearly or curvilinearly) to predict PTG. In step two, trauma-related factors (most distressing event being an interpersonal trauma, and time since this trauma) were entered to assess whether these add any additional variance to the model. Demographic variables (age, gender, and number of therapeutic sessions) were entered in step three, and the six trauma appraisals (betrayal, self-blame, fear, alienation, anger and shame) were added to the model in step four. Assumptions of normality, linearity, multicollinearity, and homoscedasticity were checked and there were no such violations in the data.

Results

Descriptive Statistics

Demographic information is displayed in Table 1. Descriptive statistics, including internal consistency (Cronbach’s $\alpha$), for study measures are displayed below in Table 2. All scales and subscales were within the recommended range of .7 (DeVellis, 2003), with three exceptions. The following subscales from the PTGI-SF did not display adequate internal consistency: relating to others and personal strength were slightly lower than .7, and appreciation for life, was significantly lower than .7. This may be due to the small number of items in the PTGI-SF subscales (two items). Internal consistency was not calculated for the PDS as this is a checklist of traumatic events. Participants had a mean age of 48.26 years ($SD = 11.14$), ranging from 26 to 68 years. There were 56 males and 28 females, with one participant not identifying a gender. Mean PTG in the sample was 23.17 ($SD$...
Mean item scores were calculated to interpret overall PTG with respect to scale responses. Therefore, this reflected an overall small degree of PTG in the sample. The individual domains of appreciation of life and spiritual change received the greatest and least endorsement respectively. Mean level of PTS in the sample was 45.72. According to the PDS, the average number of traumatic events experienced by participants was 4.11 (range 1-11).

The greatest proportion of participants identified a “Troubles”-related event as their most distressing (42%), followed by an interpersonal event (41%), death (7%), accident (7%), or life-threatening illness (3%). In terms of time, 72.6% experienced this event more than 5 years ago, with the remaining participants experiencing this event within the last 5 years (1 month to 5 years).

Table 1. Demographic characteristics of sample (n=85)

<table>
<thead>
<tr>
<th>Characteristics</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mean age, years (SD)</td>
<td>48.26 (11.14)</td>
</tr>
<tr>
<td>Gender</td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>65.88%</td>
</tr>
<tr>
<td>Female</td>
<td>29.41%</td>
</tr>
<tr>
<td>Relationship status (%)</td>
<td></td>
</tr>
<tr>
<td>Single, never married</td>
<td>32.9%</td>
</tr>
<tr>
<td>Married</td>
<td>35.3%</td>
</tr>
<tr>
<td>Divorced</td>
<td>16.5%</td>
</tr>
<tr>
<td>Separated</td>
<td>4.7%</td>
</tr>
<tr>
<td>Cohabitng with a significant other</td>
<td>7.1%</td>
</tr>
<tr>
<td>Widowed</td>
<td>2.4%</td>
</tr>
<tr>
<td>----------</td>
<td>------</td>
</tr>
<tr>
<td>Educational attainment (%)</td>
<td></td>
</tr>
<tr>
<td>Less than high school qualification</td>
<td>51.8%</td>
</tr>
<tr>
<td>High school qualification</td>
<td>13.3%</td>
</tr>
<tr>
<td>College diploma (level 4/5)</td>
<td>12%</td>
</tr>
<tr>
<td>Undergraduate degree</td>
<td>19.3%</td>
</tr>
<tr>
<td>Graduate degree</td>
<td>3.6%</td>
</tr>
<tr>
<td>Employment status (%)</td>
<td></td>
</tr>
<tr>
<td>Unemployed</td>
<td>60%</td>
</tr>
<tr>
<td>Employed</td>
<td>40%</td>
</tr>
<tr>
<td>Mean number of therapeutic sessions (SD)</td>
<td>18.67 (20.70)</td>
</tr>
</tbody>
</table>
Table 2. Descriptive statistics for study measures

<table>
<thead>
<tr>
<th>Measures</th>
<th>Construct</th>
<th>M</th>
<th>SD</th>
<th>Range</th>
<th>Potential range</th>
<th>Cronbach’s α</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTGI-SF</td>
<td>Overall PTG</td>
<td>23.17</td>
<td>12.31</td>
<td>1-50</td>
<td>0-50</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>Relating to Others</td>
<td>4.11</td>
<td>3.46</td>
<td>0-10</td>
<td>0-10</td>
<td>.67</td>
</tr>
<tr>
<td></td>
<td>New Possibilities</td>
<td>4.29</td>
<td>3.62</td>
<td>0-10</td>
<td>0-10</td>
<td>.79</td>
</tr>
<tr>
<td></td>
<td>Personal Strength</td>
<td>5.12</td>
<td>3.23</td>
<td>0-10</td>
<td>0-10</td>
<td>.69</td>
</tr>
<tr>
<td></td>
<td>Spiritual Change</td>
<td>3.23</td>
<td>3.40</td>
<td>0-10</td>
<td>0-10</td>
<td>.71</td>
</tr>
<tr>
<td></td>
<td>Appreciation of Life</td>
<td>6.54</td>
<td>2.79</td>
<td>0-10</td>
<td>0-10</td>
<td>.30</td>
</tr>
<tr>
<td>PCL-5</td>
<td>PTS Severity</td>
<td>45.72</td>
<td>17.04</td>
<td>5-80</td>
<td>0-80</td>
<td>.93</td>
</tr>
<tr>
<td>PDS</td>
<td>Cumulative Trauma</td>
<td>4.11</td>
<td>2.62</td>
<td>1-11</td>
<td>0-13</td>
<td>N/A</td>
</tr>
<tr>
<td>TAQ</td>
<td>Total Appraisals</td>
<td>160.46</td>
<td>39.56</td>
<td>75-240</td>
<td>54-270</td>
<td>.94</td>
</tr>
<tr>
<td></td>
<td>Betrayal</td>
<td>20.30</td>
<td>9.00</td>
<td>7-35</td>
<td>7-35</td>
<td>.86</td>
</tr>
<tr>
<td></td>
<td>Self-blame</td>
<td>22.72</td>
<td>9.19</td>
<td>10-45</td>
<td>10-50</td>
<td>.84</td>
</tr>
<tr>
<td></td>
<td>Fear</td>
<td>36.15</td>
<td>10.03</td>
<td>12-55</td>
<td>12-60</td>
<td>.88</td>
</tr>
<tr>
<td></td>
<td>Alienation</td>
<td>36.49</td>
<td>9.26</td>
<td>13-50</td>
<td>10-50</td>
<td>.87</td>
</tr>
<tr>
<td></td>
<td>Anger</td>
<td>23.75</td>
<td>8.19</td>
<td>9-40</td>
<td>8-40</td>
<td>.81</td>
</tr>
<tr>
<td></td>
<td>Shame</td>
<td>19.70</td>
<td>7.75</td>
<td>7-35</td>
<td>7-35</td>
<td>.83</td>
</tr>
</tbody>
</table>

Note. PTGI-SF= Posttraumatic Growth Inventory-Short Form; PCL-5 = Posttraumatic Stress Disorder Checklist-Version 5; PDS= Posttraumatic Stress Diagnostic Scale, Part 1; TAQ= Trauma Appraisal Questionnaire.
Mean scores for overall trauma appraisals, and individual appraisals can be seen in Table 2. The individual appraisals receiving the greatest endorsement in the sample were alienation and fear.

**Predictors of PTG**

A hierarchical multiple regression was conducted to establish whether PTS better predicted PTG linearly or curvilinearly. The initial analysis revealed that when considered linearly, PTS explained a significant amount of the variance in PTG; $R^2 = .071$, $F (1, 82) = 6.30$, $p = .014$. When the curvilinear component was added in step 2, this did not add a significant amount of variance to the linear model, only explaining an additional .6% of the variance in PTG; $R^2_{change} = .006$, $F-change (1, 81) = .55$, $p = .463$. Therefore, in this sample, PTS was better considered a linear predictor of PTG, and was entered into the subsequent hierarchical multiple regression as a linear variable.

A 4-step hierarchical multiple regression examined the effects of PTS (step 1); trauma-related variables (step 2; interpersonal trauma and time since trauma); demographic variables (step 3; age, gender, number of therapeutic sessions); and trauma appraisals (step 4; betrayal, self-blame, fear, alienation, anger and shame) on the outcome variable, PTG. The results from this analysis are displayed in Table 3.

In the first step of the model, a higher level of PTG was predicted by lower PTS; $\beta = -.27$, $p < .05$, with step 1 of the model explaining a significant amount of the variance in overall PTG; $R^2 = .071$, $F (1, 54) = 4.15$, $p < .05$. 
In step 2, the experience of an interpersonal event, or time since this event, did not add a significant amount of variance to the first step of the model; $R^2 = .117$, $F$-change (2, 52) = 1.35, $p = .267$. When PTS, from step 1, was controlled for, 4.6% of the variance in overall PTG was explained by the experience of an interpersonal event and the time since this event; $R^2 change = .046$. PTS remained a significant predictor of PTG; $\beta = -.31$, $p = .024$.

In step 3 of the model, demographic variables (age, gender and number of sessions) were added, and this made a significant addition of explained variance in PTG, explaining 14.6% when all earlier variables were controlled for; $R^2 change = .146$, $F$-change (3, 49) = 3.24, $p = .03$. Out of these variables, only number of therapeutic sessions were a significant predictor of PTG; $\beta = .35$, $p = .014$. PTS was no longer a significant predictor of PTG in step 3; $\beta = -.19$, $p = .168$.

In step 4, the six trauma appraisals were included, adding a significant amount of explained variance in PTG; $R^2 change = .297$, $F$-change (6, 43) = 4.84, $p = .001$. The model as a whole explained 56% of the variance in PTG; $R^2 = .560$, $F$ (12, 43) = 4.57, $p < .01$. In this final model, the significant predictors of PTG, in order of contribution were; betrayal appraisals ($\beta = .47$, $p = .001$, shame appraisals ($\beta = -.42$, $p = .020$) and number of sessions ($\beta = .33$, $p = .009$).

The final model explained 56% of the variance in the outcome variable, PTG, with betrayal appraisals, shame appraisals and number of therapeutic sessions demonstrated to be significant predictors. Betrayal appraisals and number of sessions were positive predictors, suggesting that
individuals with high betrayal appraisals and an increased number of sessions may be more likely to experience PTG. Shame appraisals were a negative predictor, suggesting that individuals with high shame appraisals may be likely to experience lower PTG. PTS, trauma-related variables (the experience of an interpersonal event and the time since this event), demographic variables of age and gender, and four of the six trauma appraisals (self-blame, fear, alienation and anger) were non-significant predictors of PTG. PTS was shown to be a significant predictor in step 1 and step 2 of the model, but this relationship was better explained by the addition of other variables (number of sessions, betrayal and shame appraisals).
Table 3. *Hierarchical multiple regression coefficients for predictors*

<table>
<thead>
<tr>
<th>Step 1</th>
<th>Predictors: PTS</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$F (1, 54) = 4.15, p&lt;.05$, $R^2 = .071$, <em>Adjusted $R^2 = .054$.</em></td>
<td></td>
</tr>
<tr>
<td>PTS</td>
<td>-.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 2</th>
<th>Predictors: PTS, Interpersonal trauma, time since most distressing event</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$F (3, 52) = 2.30, p=.089$, $R^2 = .117$, <em>Adjusted $R^2 = .066$.</em></td>
<td></td>
</tr>
<tr>
<td>PTS</td>
<td>-.23</td>
</tr>
<tr>
<td>Interpersonal trauma</td>
<td>-5.64</td>
</tr>
<tr>
<td>Time since most distressing event</td>
<td>-4.57</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Step 3</th>
<th>Predictors: PTS, Interpersonal trauma, time since most distressing event, age, gender, number of sessions</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$\beta$</td>
</tr>
<tr>
<td></td>
<td></td>
</tr>
<tr>
<td>$F (6, 49) = 2.92, p = .02$, $R^2 = .263$, <em>Adjusted $R^2 = .173$.</em></td>
<td></td>
</tr>
<tr>
<td>PTS</td>
<td>-.14</td>
</tr>
<tr>
<td>Interpersonal trauma</td>
<td>-3.12</td>
</tr>
<tr>
<td>Time since most distressing event</td>
<td>-1.82</td>
</tr>
<tr>
<td>Predictor</td>
<td>β</td>
</tr>
<tr>
<td>------------------------------------------------</td>
<td>------</td>
</tr>
<tr>
<td>Age</td>
<td>-0.26</td>
</tr>
<tr>
<td>Gender</td>
<td>1.41</td>
</tr>
<tr>
<td>Number of sessions</td>
<td>0.21</td>
</tr>
</tbody>
</table>

**Step 4** Predictors: PTS, Interpersonal trauma, time since most distressing event, age, gender, number of sessions, trauma appraisals (x6)

<table>
<thead>
<tr>
<th>Predictor</th>
<th>β</th>
<th>Standardised β</th>
<th>t</th>
<th>p</th>
</tr>
</thead>
<tbody>
<tr>
<td>PTS</td>
<td>0.17</td>
<td>0.23</td>
<td>1.45</td>
<td>0.156</td>
</tr>
<tr>
<td>Interpersonal trauma</td>
<td>-2.14</td>
<td>-0.08</td>
<td>-0.56</td>
<td>0.576</td>
</tr>
<tr>
<td>Time since most distressing event</td>
<td>-4.81</td>
<td>-0.18</td>
<td>-1.47</td>
<td>0.150</td>
</tr>
<tr>
<td>Age</td>
<td>-0.12</td>
<td>-0.11</td>
<td>-0.98</td>
<td>0.331</td>
</tr>
<tr>
<td>Gender</td>
<td>-5.68</td>
<td>-0.22</td>
<td>-1.74</td>
<td>0.089</td>
</tr>
<tr>
<td>Number of sessions</td>
<td>0.20</td>
<td>0.33</td>
<td>2.74</td>
<td>0.009</td>
</tr>
<tr>
<td>Betrayal appraisals</td>
<td>0.64</td>
<td>0.47</td>
<td>3.47</td>
<td>0.001</td>
</tr>
<tr>
<td>Self-blame appraisals</td>
<td>-0.01</td>
<td>-0.01</td>
<td>-0.06</td>
<td>0.955</td>
</tr>
<tr>
<td>Fear appraisals</td>
<td>-0.37</td>
<td>-0.30</td>
<td>-1.85</td>
<td>0.071</td>
</tr>
<tr>
<td>Alienation appraisals</td>
<td>0.04</td>
<td>0.03</td>
<td>0.17</td>
<td>0.869</td>
</tr>
<tr>
<td>Anger appraisals</td>
<td>-0.27</td>
<td>-0.17</td>
<td>-1.30</td>
<td>0.201</td>
</tr>
<tr>
<td>Shame appraisals</td>
<td>-0.67</td>
<td>-0.42</td>
<td>-2.42</td>
<td>0.020</td>
</tr>
</tbody>
</table>

$F (12, 43) = 4.57, p < .01, R^2 = .560, Adjusted R^2 = .443.$
Discussion

The present study revealed that the association between PTS and PTG is best explained as a linear rather than curvilinear relationship. However, this predictive relationship became non-significant when other variables were added into the regression. This ultimately demonstrated that the most salient predictors of posttraumatic growth were the number of therapeutic sessions attended by the participant together with both betrayal and shame appraisals. An increased number of therapeutic sessions appear to facilitate PTG suggesting that longer-term therapeutic involvement may support the cognitive processing necessary for the emergence of PTG. Betrayal appraisals may trigger increased cognitive processing and may reflect the reattribution of blame to perpetrators in interpersonal events, and could therefore be associated with reduced PTS and increased PTG. Appraisals of shame may inhibit the experience of PTG among trauma survivors, due to negative self-evaluations and experiential avoidance. Therefore, factors amenable to change in therapeutic settings may be more salient in predicting PTG than individuals’ distress, event-related factors and stable demographic characteristics.

PTS in the current study was better represented as a linear predictor of PTG, indicating in the first step of the model that lower PTS predicted higher PTG. This may relate to the emphasis on manageable distress as a precipitator for PTG (Tedeschi & Calhoun, 2004), with higher levels of PTS being a barrier to PTG (Shakespeare-Finch & Lurie-Beck, 2014). The linearity was in line with the findings of Achterhof and colleagues (2018) who found that a linear relationship better represented PTS and PTG, at a later
time point post-event. Most of the current sample, 72.6%, experienced their most distressing trauma more than five years ago. However, time since the event did not contribute a significant amount of variance to PTG. Another underlying factor may therefore influence this relationship. In the third and fourth step of the regression model, PTS was rendered non-significant by the addition of the number of therapeutic sessions participants had, and appraisals of betrayal and shame.

Shame was a demonstrated significant negative predictor in the sample, suggesting it may be a barrier to PTG among survivors. The experience of trauma can shatter an individuals’ self-schemata relating to identity (Tedeschi & Calhoun, 2004), with shame significantly impacting self-appraisal (Lee, Scragg, & Turner, 2011; Wilson et al., 2006). The experience of posttraumatic shame leads survivors to self-attribute failure and blame, building these representations into their identity (Wilson, Drozdek, & Turkovic, 2006). This opposes the schematic integration of personal strength, as in PTG (Tedeschi & Calhoun, 1996). Shame has also been considered to contribute to a reduction in connection with others (Wilson et al., 2006). Considering the role of social connection in the theoretical model of PTG (Tedeschi & Calhoun, 2006), high shame appraisals may be the antithesis to the emergence of PTG.

This may also be understood in light of cognitive processes. Shame-based trauma appraisals have been associated with greater posttraumatic stress (Feiring & Taska, 2005), with the relationship between shame and distress mediated by rumination (Orth, Berking & Burkhardt, 2006). Individuals with shame-based appraisals may engage in attempts at thought...
suppression and experiential avoidance (Carvalho, Dinis, Pinto-Gouveia, & Estanqueiro, 2015). Therefore, trauma survivors with high shame appraisals, may experience significant intrusive rumination related to the traumatic event (Feiring & Taska, 2005), and may attempt to suppress this. Persistent shame has been proposed by Feiring and Taska (2005), as preventing event-related processing. This may therefore inhibit such individuals from engaging in the post-event meaning-making that is central to the development of PTG.

In contrast, betrayal appraisals were found to be a significant positive predictor. Evaluations of betrayal are often associated with events in which the individual has familiarity to the perpetrator and this has been linked to adverse psychological outcomes (Cromer & Smith, 2010). This may be culturally relevant to Northern Ireland, where conflict-related events are often perpetrated by individuals within the survivors’ communities (Simms, 2014). Within the current sample, lifetime experience of “Troubles”-related events was high. Traumatic events associated with a perceived betrayal component are considered more psychologically demanding than events without this component (DePrince, 2005). This increased psychological demand may encourage the deliberate rumination and schema-rebuilding that is integral to PTG (Wang, Wu, & Lan, 2019; Tedeschi & Calhoun, 2004). It may also be considered that the experience of betrayal appraisals may be a reflection of the integration of actual events into the trauma memory, to support a more accurate account of the trauma (Ehlers & Wild, 2015). This may reflect the more accurate reattribution of blame to the perpetrator after interpersonal events, therefore associated with PTS symptom reduction (Ehlers & Clark,
2000), and increased PTG. However, it is important that with the novelty of this finding, interpretation must be circumspect and made with caution.

Having a greater number of psychological therapy sessions increased participants likelihood of reporting PTG. This was consistent with the consensus in the wider literature (Tedeschi & Calhoun, 2004; Schubert, Schmidt, & Rosner, 2016). The effect of this variable was such that it impacted the predictive relationship between PTS and PTG. Therefore, the cognitive processes facilitated through psychological intervention for PTS, rather than PTS itself, may predict PTG. With regard the number of sessions, this enables tentative hypothesising about the benefit of longer-term therapeutic involvement in the facilitation of PTG. This can be considered in light of the encouragement for longer-term psychological interventions to promote recovery in trauma-related presentations (Courtois, 2004). A greater number of sessions may be required to facilitate therapeutic alliance and rebuild survivors’ schematic representations of self and the world. However, as this is a cross-sectional study, understanding the development of PTG is beyond the current scope. Longitudinal exploration is warranted to understand the cognitive development of PTG through psychological intervention. The outcome measurement of PTG in therapeutic settings may also be beneficial, when in line with clients therapeutic goals.

Trauma-related factors (trauma typology and time since event), and demographic characteristics of age and gender were non-significant predictors of PTG, alongside four of the six trauma appraisals. With regard trauma typology, while Tedeschi and Calhoun (2004) emphasise a seismic event in shattering assumptions, the event itself may not be related to PTG,
more so the cognitive processes it stimulates. However, the lack of demonstrated effect of trauma typology may be due to the way in which this was categorised, as it contradicts the conclusion of Shakespeare-Finch and Armstrong (2010) that interpersonal trauma is associated with less PTG.

Participants were grouped based on their most distressing event, in order to minimise the impact of other experienced events. However, despite efforts to minimise this, there is still the possibility that those who nominated a non-interpersonal event as their most distressing, may have also experienced an interpersonal event.

There was no effect of age, or gender on PTG, with Powell, Butollo, Tedeschi, and Calhoun (2003) similarly concluding that age does not predict PTG. However, this finding contradicts other conclusions in the literature that younger adult females are the demographic most likely to report PTG after a traumatising event (Achterhof et al., 2018). It is important to note that the greater number of males in the current sample may have contributed to this finding.

As for the remaining trauma appraisals, there was no significant effect of self-blame, fear, alienation, or anger on PTG, suggesting that the experience of these appraisals after trauma are not related to participants’ reporting of PTG. As this was the first study to explore the impact of these trauma appraisals in PTG, this finding has not been replicated elsewhere in the literature base.

**Implications**

This study suggests that the predictive relationship between PTS and PTG may be attributed to other factors. It was clear that the most influential
Factors predicting PTG are amenable to therapeutic intervention and change, including the number of psychological therapy sessions and presence of betrayal and shame appraisals. Increased number of sessions were related to higher PTG, leading to the suggestion that longer term psychological therapy may be required for PTG (Courtois, 2004; Herman, 1992). It also enables hypothesising about the target areas for psychological intervention, if PTG informs a client's goals. Cognitive restructuring targeting a reduction in shame-based trauma appraisals and blame reattribution may increase survivors' likelihood of experiencing PTG as the intervention progresses. The significance of betrayal and shame appraisals will also be beneficial to assessment, formulation and treatment-planning. Trauma appraisals are a central component of psychological formulation, and intervention, using cognitive models for PTSD (Ehlers & Clark, 2000). Therefore, clinicians working within this framework are likely to have considered the role of client's event-related appraisals in the development and maintenance of their distress. The ability for betrayal- and shame-based appraisals to predict PTG may therefore supplement case conceptualisation, with interventions targeting PTG directed towards those most likely to benefit from it. This study also adds to current literature base on the role of cognitive processes in PTG, highlighting the significant role of appraisals of shame and betrayal.

Limitations

Despite novel findings, the current study had some limitations. The low internal consistency of the subscales of the PTGI-SF warrant mention, as the use of the short form may be considered a limitation. However, this scale was chosen to reduce participant burden, and was deemed a robust
measure of overall PTG. Particular caution should be employed when interpreting the finding of the subscales, especially the appreciation of life subscale. Despite evidencing no effect of gender on PTG, the bias towards males in the sample may reflect the average level of PTG being small, as females have been demonstrated in the wider literature as having a greater propensity towards PTG (Achterhof et al., 2018). As noted above, the way in which trauma typology was categorised may have caused the experience of other events to impact responding to subsequent measures, in particular the PTGI-SF, despite efforts to reduce the impact of this.

It must be mentioned that the cross-sectional, correlational design of this study means that conclusions about directionality between the associated variables should not be overstated. While the model tested in this study considered PTG as an outcome variable, it could also be argued that influence may occur in the opposite direction. The findings in the current study support associations between psychological therapy, trauma appraisals and PTG, and allow tentative hypothesising that this association may be predictive. Nonetheless, conclusions cannot be inferred about the variables involved in the development of PTG. Longitudinal study is required to explore the cognitive processes associated with the emergence of PTG.

**Conclusion**

This study demonstrated that the predictive relationship between PTS and PTG may be influenced by underlying factors, such as the number of psychological therapy sessions participants attended, and appraisals of betrayal and shame. It demonstrated that individuals who had received a higher number of psychological therapy sessions and had higher betrayal-
based trauma appraisals reported higher PTG. It also indicated that individuals with high shame-based appraisals reported lower PTG. The significant effect of psychological therapy and trauma appraisals emphasise the role of factors that can be targeted in psychological intervention where PTG is in line with client’s goals. Therefore, trauma survivors’ involvement with psychological support and their appraisals of the event, may be of greater importance in predicting PTG than PTS, event-related characteristics, or demographic factors, such as age and gender.
References


breast cancer: Which factors can relate to the post-traumatic outcomes? *Frontiers in Psychology, 10*, 891


Section 5: Technical Appendices for Large Scale Research Project

Appendix A. G* Power Calculation

**F tests - Linear multiple regression: Fixed model, R² deviation from zero**

**Analysis:** A priori: Compute required sample size

**Input:**
- Effect size f² = 0.25
- α err prob = 0.05
- Power (1-β err prob) = 0.8
- Number of predictors = 12

**Output:**
- Noncentrality parameter λ = 20.2500000
- Critical F = 1.8974958
- Numerator df = 12
- Denominator df = 68
- Total sample size = 81
- Actual power = 0.8041071
Appendix B. Battery of Self-Report Questionnaires

Demographic Information

Date: __________________________

ID: __________________________

Age: ______

Gender: __________________________

Marital Status (Please circle):

- Single
- Married
- Separated
- Divorced
- Widowed
- Cohabiting
- In a civil partnership

Are you employed at present (Please circle)?

YES / NO

If YES, is this FULL-TIME or PART-TIME? (Please circle)

Are you currently receiving psychological support? (E.g. psychological intervention/psychotherapy/counselling)

YES / NO

If yes, please indicate number of sessions to date, the type and nature of this support: (e.g. “6 sessions of CBT for depression”)
**PTSD Checklist – Civilian Version (PCL-5)**

Instructions: Below is a list of problems that people sometimes have in response to a very stressful experience. Please read each problem carefully and then circle one of the numbers to the right to indicate how much you have been bothered by that problem in the past month.

<table>
<thead>
<tr>
<th></th>
<th>0 Not at all</th>
<th>1 A Little Bit</th>
<th>2 Moderately</th>
<th>3 Quite a Bit</th>
<th>4 Extremely</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Repeated, disturbing, and unwanted memories of the stressful experience?</td>
<td></td>
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<tr>
<td>2. Repeated, disturbing dreams of the stressful experience?</td>
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<td>3. Suddenly feeling or acting as if the stressful experience were actually happening again (as if you were actually back there reliving it)?</td>
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<td>4. Feeling very upset when something reminded you of the stressful experience?</td>
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<td>5. Having strong physical reactions when something reminded you of the stressful experience (for example, heart pounding, trouble breathing, sweating)?</td>
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<td>6. Avoiding memories, thoughts, or feelings related to the stressful experience?</td>
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<td>7. Avoiding external reminders of the stressful experience (for example, people, places, conversations, activities, objects, or situations)?</td>
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<tr>
<td>8. Trouble remembering important parts of the stressful experience?</td>
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<tr>
<td>9. Having strong negative beliefs about yourself, other people, or the world (for example, having thoughts such as: I am bad, there is something seriously wrong with me, no one can be trusted, the world is completely dangerous)?</td>
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<tr>
<td>10. Blaming yourself or someone else for the stressful experience or what happened after it?</td>
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<tr>
<td>11. Having strong negative feelings such as fear, horror, anger, guilt, or shame?</td>
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<td>12. Loss of interest in activities that you used to enjoy?</td>
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<tr>
<td>13. Feeling distant or cut off from other people?</td>
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<td>14. Trouble experiencing positive feelings (for example, being unable to feel happiness or have loving feelings for people close to you)?</td>
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<td>15. Irritable behavior, angry outbursts, or acting aggressively?</td>
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<td>16. Taking too many risks or doing things that could cause you harm?</td>
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</tbody>
</table>
17. Being "superalert" or watchful or on guard?
18. Feeling jumpy or easily startled?
19. Having difficulty concentrating?
20. Trouble falling or staying asleep?
Part 1 and 2 of the Posttraumatic Stress Diagnostic Scale (Foa et al., 1997)

Part 1

People have lived through or witnessed a very stressful and traumatic event at some point in their lives. Below is a list of traumatic events. Put a checkmark in the box next to ALL of the events that have happened to you or that you have witnessed.

1. An event related to the Northern Ireland Troubles (for example, combat experience, beaten by someone, threatened, witnessed someone being killed or seriously injured, saw atrocities, etc).
2. Serious accident, fire, or explosion (for example, an industrial, farm, car, plane, or boating accident)
3. Natural disaster (for example, tornado, hurricane, flood, or major earthquake)
4. Non-sexual assault by a family member or someone you know (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)
5. Non-sexual assault by a stranger (for example, being mugged, physically attacked, shot, stabbed, or held at gunpoint)
6. Sexual assault by a family member or someone you know (for example, rape or attempted rape)
7. Sexual assault by a stranger (for example, rape or attempted rape)
8. Military combat or a war zone
9. Sexual contact when you were younger than 18 with someone who was 5 or more years older than you (for example, contact with genitals, breasts)
10. Imprisonment (for example, prison inmate, prisoner of war, hostage)
11. Torture
12. Life-threatening illness
13. Other traumatic event
14. If you marked Item (13), specify the traumatic event below
(15) If you marked more than one traumatic event in Part 1, put a checkmark in the box below next to the event that bothers you the most. If you marked only one traumatic event in Part 1, mark the same one below.

☐ NI Troubles-related event
☐ Accident
☐ Disaster
☐ Non-sexual assault/someone you know
☐ Non-sexual assault/stranger
☐ Sexual assault by someone you know
☐ Sexual assault/stranger
☐ Combat
☐ Sexual contact under 18 with someone 5 or more years older
☐ Torture
☐ Life-threatening illness
☐ Other

In the box below, briefly describe the traumatic event you marked above.

The below question is about the traumatic event you just described above.

(16) How long ago did the traumatic event happen?
(circle ONE)
1. Less than month
2. 1 to 3 months
3. 3 to 6 months
4. 6 months to 3 years
5. 3 to 5 years
6. More than 5 years
## Post Traumatic Growth Inventory Short Form

Indicate for each of the statements below the degree to which this change occurred in your life as a result of the crisis/disaster, 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>
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</thead>
<tbody>
<tr>
<td>1. I changed my priorities about what is important in life.</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 am able to do better things with my life.</td>
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<td>4. I have a better understanding of spiritual matters.</td>
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<td>5. I have a greater sense of closeness with others.</td>
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<td>6. I established a new path for my life.</td>
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<td>7. I know better that I can handle difficulties.</td>
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<td>8. I have a stronger religious faith.</td>
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<td>9. I discovered that I’m stronger than I thought I was.</td>
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<td>10. I learned a great deal about how wonderful people are.</td>
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</table>
Trauma Appraisal Questionnaire

Please continue thinking about the event that bothers you the most. We are interested in how you feel now when you think about the event. For each of the following items, please circle the number that indicates how much you agree or disagree with the description of your thoughts, feelings or experiences now when you think about the event. You may skip any question you do not wish to answer.

<table>
<thead>
<tr>
<th></th>
<th>1 strongly disagree</th>
<th>2 somewhat disagree</th>
<th>3 neutral</th>
<th>4 somewhat agree</th>
<th>5 strongly agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. I feel humiliated.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>2. I don’t feel safe even when others say I am safe.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>3. I deserved what happened to me.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>4. The person who was supposed to be closest to me hurt me the most.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>5. I’m always ready to attack.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>6. I feel ashamed.</td>
<td>1 2 3 4 5</td>
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<tr>
<td>7. The event happened because I wasn't careful enough.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>8. I feel rage.</td>
<td>1 2 3 4 5</td>
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<tr>
<td>9. I don’t think I’ll survive.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>10. It’s as if I’m in a horror movie and can’t get out.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>11. I’ve cut myself off from other people.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>12. I often find myself yelling and screaming at other people.</td>
<td>1 2 3 4 5</td>
<td></td>
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<tr>
<td>13. I’m not safe</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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</tr>
<tr>
<td>14. I mostly stay to myself.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>15. I am disconnected from people.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>16. I want to physically hurt the people or thing that made the event happen.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>17. Important people (such as parents, partner, friend) let this happen to me.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>18. I must have done something really awful to make this happen.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
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<tr>
<td>19. I let myself down.</td>
<td>1 2 3 4 5</td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>20.</td>
<td>If the person really cared about me that person would not have done what they did.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<td>--------------------------------------------------------------------------------</td>
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<tr>
<td>21.</td>
<td>I feel terrified.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>22.</td>
<td>I want revenge.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>23.</td>
<td>I feel betrayed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>24.</td>
<td>I am always on alert for danger.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td>25.</td>
<td>I feel double-crossed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>26.</td>
<td>Something bad could happen at any time.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>27.</td>
<td>There is a huge void inside me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>28.</td>
<td>I feel lonely.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>29.</td>
<td>I am responsible for what happened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>30.</td>
<td>I don’t know whether I will live or die.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>31.</td>
<td>I feel responsible.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>32.</td>
<td>I feel horrified.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>33.</td>
<td>I feel disgust.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>34.</td>
<td>I feel guilty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>35.</td>
<td>If someone says the wrong thing to me, I might fly off the handle.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>36.</td>
<td>Anger gives me power.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>37.</td>
<td>I’ve lost my sense of manhood or womanhood.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>38.</td>
<td>I don’t want to have to trust anyone.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>39.</td>
<td>Someone important (such as a parent, lover, friend) should have kept me safe.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>40.</td>
<td>Even though I have friends, I’m still lonely.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>41.</td>
<td>I’m a bad person.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>42.</td>
<td>I feel afraid.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>43.</td>
<td>I feel embarrassed.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>44.</td>
<td>If I were good enough, this wouldn’t have happened to me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>45.</td>
<td>I’ve lost a piece of myself.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
</tr>
<tr>
<td>46.</td>
<td>No shower can wash away how dirty I feel.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
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<tr>
<td></td>
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<tr>
<td>47. I can’t get close to people.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>48. I feel angry.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>49. The people that I was supposed to trust the most hurt me.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>50. Danger is always present.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>51. I am hard on myself about what happened.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>52. I feel violent.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>53. My friends don’t understand my reactions.</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
</tr>
<tr>
<td>54. It’s as if my insides are dirty.</td>
<td>1</td>
<td>2</td>
<td>3</td>
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<td>5</td>
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</tbody>
</table>
Appendix C. Participant Information Pack

Understanding Posttraumatic Growth in Northern Ireland

This information leaflet is an invitation for you to take part

(Research team contact details overleaf)

You have been given this information sheet by your therapist on behalf of a researcher based at Queen’s University. My name is Amanda Gleeson and on behalf of the research team, I would like to invite you to take part in our research study which is being undertaken as part of an educational qualification. Through this information sheet I hope to describe our study to you so that you can make an informed decision about whether or not you would like to participate. Please take time to go through the information sheet and talk to others about the study if you wish.

If, once you’ve had time to consider this information, you decide you would like to take part please complete the attached ‘reply slip’ and return it to us by placing it in the sealed box located in the waiting room of the service. I will check this box regularly and contact you to arrange a suitable date and time to meet.

What is the research about?
The purpose of this study is to understand more about peoples’ responses to very stressful or traumatic experiences. These events may, or may not, be related to the Northern Irish “Troubles”. I would like to explore how different elements, for example,
how you make sense of what happened to you, impact how you cope following these events. Exploring individual responses following stressful life events will help to increase our understanding of the range of psychological outcomes of trauma. Expanding this understanding can help to inform treatments that aim to target and work with these specific responses.

**What will happen if you take part?**

One of the researchers will meet with you to support you in completing a number of questionnaires. This is estimated to take approximately 40 minutes, and time will be provided for breaks, should you wish to avail of this opportunity. Before completing the questionnaires there will be an opportunity to review this information sheet and address any questions you might have about the study. If you decide to proceed, I will ask you to sign a consent form before beginning the questionnaires. After completing the questionnaires there will be an opportunity to ask any further questions and discuss your experience of participating. Your direct involvement in the study will end at that point and you will not be contacted by the research team again.

**Do you have to participate?**

Your participation in this study is voluntary. If you decide not to take part now, when I contact you, or at the appointment then you will not be contacted about the study again. You are also free to withdraw from the study without giving a reason. You can withdraw any time within the month after you participate. After this time your anonymised data will be merged with others and so it would not be possible to withdraw it. Not taking part or withdrawing will not affect the care you receive in any way.

**Are there any possible benefits of taking part?**

While people often find that taking part in research is a positive experience, I do not expect that taking part in this study will benefit you directly. However the information I get from this study will be used to better inform the ways in which I understand and help people who experience very stressful life events.

**Are there any risks involved in taking part?**

The questionnaires include questions related to traumatic experiences you may have witnessed or experienced. Reflecting on these experiences may bring up difficult emotions for you. I am aware that this is a possibility and if you experience any distress the researcher can assist you in making contact with your therapist to discuss these issues.

**What will we do with the information you provide us with?**

I will ensure that the information you provide remains secure and confidential by anonymising it using a number and storing it on a password-protected computer. Your consent form and completed questionnaires will be stored separately. Only the five members of the research team will have access to view the information. Information will be kept strictly confidential, except in the rare circumstances that it is judged that you or someone else is at immediate risk of serious harm, or if details of previously unreported criminal activity are divulged. In these cases the researchers have a statutory duty to pass this information on to the relevant authorities.
What will happen when the study is complete?
I plan to publish and share the results of this study, in a scientific journal and potentially at conference proceedings, however no participant will be identified in any way in any such publications or presentations. If you would be interested in learning about results of this study, they can be sent to you when the study is complete.

Who has approved this study?
In order to protect your interests and safety, all research that takes place in the HSC is looked at by an independent group of people, called a Research Ethics Committee. This study has been checked and reviewed by Health and Social Care Research Ethics Committee A (HSC RECA). It has also been reviewed by academic staff at the School of Psychology, Queen’s. The research team will be glad to answer your questions about this study at any time. We can be contacted using the details overleaf.

We are very grateful for your time

Research team contact details:
Amanda Gleeson (Lead Researcher)
Queens University Belfast
Agleeson03@qub.ac.uk

Dr Donncha Hanna (Chief Investigator)
Tel: 028 9097 5549
donncha.hanna@qub.ac.uk

Dr David Curran (Academic Supervisor)
Tel: 028 9097 5652
d.curran@qub.ac.uk

Dr Jane Simms (Clinical Supervisor)
Tel: 028 94415787
jane.simms@northerntrust.hscni.net

Dr Kevin Dyer (Clinical Supervisor)
Tel: 028 9097 5632
k.dyer@qub.ac.uk
REPLY SLIP

I have read all of the information provided and I

Miss/Mrs/Mr__________________________________ would like to

participate in this research.

My telephone number for you to contact me, to arrange a time to meet is

__________________________________________

Please send return reply slips (within two weeks) to:
Amanda Gleeson, by placing slip in a box (labelled “Posttraumatic
Growth Study”) in the waiting room of your service.

If you would like to speak with someone before completing the reply
slip, please email agleeson03@qub.ac.uk and a phone call will be
arranged.

I look forward to meeting with you
Appendix D. Participant Consent Form

Participant Consent Form

Please Initial each box

• I confirm that I have read and understood the participant Information leaflet and this agreement is of my own free will.

• I understand that participation is voluntary and that I am free to withdraw at any time (up to 1 month after completing the questionnaires), without giving a reason, and without penalty.

• I understand that all data collected will be anonymised and that no personally identifiable information will be present in the final report.

• I have been provided with the contact details of the research team should I have any further questions

• I agree to be contacted by the researcher to arrange a time and place to meet.

• I understand that if concerns arise for me throughout the interview I will be signposted to a debrief sheet of support organisations, and to my clinician

• I understand that if the researchers judge me, or someone else, to be at immediate risk of serious harm, or if details of previously unreported criminal activity are divulged, that the researcher has a statutory duty to pass this information on to the relevant authorities.

• I understand that this research is being completed as part of an educational qualification

• I agree to participate in this study.

...........................................  ......................................................  ..........................
<table>
<thead>
<tr>
<th>Name of Participant</th>
<th>Signature</th>
<th>Date:</th>
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<tbody>
<tr>
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</table>

<table>
<thead>
<tr>
<th>Name of Researcher</th>
<th>Signature</th>
<th>Date:</th>
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Appendix E. Distress Protocol

Distress Protocol (Adapted from Draucker, Martsoff, & Poole, 2009).

Step 1
- Participant indicates experiencing a high level of stress or emotional distress during the questionnaire administration OR
- Participant exhibits behavioural signs of distress (e.g. crying, indications of flashbacks, incoherent speech etc.).
- Stop the administration, offer support and assess the participant’s mental state. Provide participant time to regroup.
- The following questions could be used:
  - How are you feeling?
  - What thoughts are you having?
  - Do you feel safe?

Step 2
- Questionnaires to be resumed only if the participant feels able. If questionnaires are resumed, proceed to step 4.
- If participant is unable to carry on with the battery of measures, proceed to step three.

Step 3
- Discontinue questionnaires. Provide opportunity to discuss what they are feeling/experiencing. Assess risk to self and others. Examples of communication with participant:
  - Tell me what thoughts you are having?
  - Do you intend to harm yourself or others?
- If risk of harm to self or others is identified, share concerns with participant and where appropriate notify GP, clinician involved in their care, and/or a family member etc.

Step 4
- If no risk identified, request permission to communicate distress to clinician involved in their care
- Participant to be provided with a debrief sheet providing contact details for support groups
Appendix F. Participant Debrief Sheet

Debrief Sheet

Thank you for taking part in this research. I hope that taking part has not caused you any distress, however if you are concerned about yourself in any way, or feel any of the issues addressed within the research may have caused you any distress, a list of support organisations are provided below which can offer advice and support. I would also encourage you to talk to the clinician involved in your care, if you have the opportunity to do so.

| Lifeline Northern Ireland | A 24-hour crisis response helpline for people experiencing distress or despair. Counsellors have experience with
|                          | • Trauma
|                          | • Suicide and self-harm
|                          | • Depression, anxiety, etc.
|                          | You can contact Lifeline on 0800 808 8000
|                          | www.lifelinehelpline.info |

| Victims & Survivors Service (VSS) | Community-based organisation offering psychological support to victims and survivors of trauma.
|                                   | • Drop-in service
|                                   | • Psychological therapy
|                                   | • Classes
|                                   | http://survivorsoftrauma.esy.es
|                                   | Tel: (028) 90749944 (General Enquiries) |
| **Wave Trauma Centre Northern Ireland** | A service providing care and support for people affected by the “Troubles” in Northern Ireland. They are located in a number of areas in NI. They offer:  
- Counselling  
- Outreach support and welfare advice  
- Advocacy  

www.wavetraumacentre.org.uk  
Tel: (028) 9077 9922 |
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<tr>
<th>Variable</th>
<th>M</th>
<th>SD</th>
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<th>2</th>
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<th>4</th>
<th>5</th>
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<th>10</th>
<th>11</th>
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<td>1. PTG</td>
<td>23.17</td>
<td>12.31</td>
<td>-0.267*</td>
<td>-0.131</td>
<td>-0.049</td>
<td>-0.19*</td>
<td>0.181</td>
<td>0.397**</td>
<td>0.286**</td>
<td>-0.205*</td>
<td>0.447**</td>
<td>0.389**</td>
<td>0.382**</td>
<td>0.388**</td>
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<td>2. PTS</td>
<td>45.73</td>
<td>17.04</td>
<td>-0.267*</td>
<td>-0.060</td>
<td>-0.192</td>
<td>-0.037</td>
<td>0.110</td>
<td>-0.311*</td>
<td>0.22*</td>
<td>0.48**</td>
<td>0.589**</td>
<td>0.637**</td>
<td>0.539**</td>
<td>0.612**</td>
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<td>3. Trauma typology / /</td>
<td>-0.131</td>
<td>-0.060</td>
<td>-0.293**</td>
<td>0.084</td>
<td>-0.175</td>
<td>-0.065</td>
<td>-0.408**</td>
<td>-0.082</td>
<td>0.184</td>
<td>-0.104</td>
<td>-0.087</td>
<td>-0.312**</td>
<td></td>
<td></td>
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<tr>
<td>4. Time           / /</td>
<td>-0.049</td>
<td>-0.192</td>
<td>-0.293**</td>
<td>0.051</td>
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<td>-0.091</td>
<td>0.172</td>
<td>-0.179</td>
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<td>5. Age            48.26</td>
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<td>6. Gender No. of sessions / /</td>
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<td>7. Time           / /</td>
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<td>8. Betrayal       2.90</td>
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<td>0.234*</td>
<td>0.445**</td>
<td>0.473**</td>
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<td>0.169*</td>
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<td>-0.119</td>
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<td>0.445**</td>
<td>0.639**</td>
<td>0.466**</td>
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</tr>
<tr>
<td>11. Alienation    3.65</td>
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<td>0.389**</td>
<td>0.637**</td>
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<td>0.073</td>
<td>0.062</td>
<td>-0.003</td>
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<td>12. Anger         2.64</td>
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<td>13. Shame         2.82</td>
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<td>0.668**</td>
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</tbody>
</table>

**Note.** M and SD are used to represent means and standard deviations respectively; *indicates p < .05; **indicates p < .01; Variable 8-13 represent trauma appraisals from TAQ subscales. M and SD for trauma typology, time since event, and gender are not represented as all are binary variables.
Prior to submission, please carefully read and follow the submission guidelines
detailed below. Manuscripts that do not conform to the submission guidelines may
be returned without review.

Submission

To submit to the Editorial Office of Kathleen Kendall-Tackett, please submit
manuscripts electronically through the Manuscript Submission Portal in Microsoft
Word or Open Office format.

Kathleen Kendall-Tackett, PhD
Praeclarus Press, LLC
General correspondence may be directed to the Editor's Office.

Length

Manuscripts for Psychological Trauma: Theory, Research, Practice, and Policy can
vary in length, but may not exceed 28 double-spaced manuscript pages (including
title page, abstract, manuscript body, references, and tables/figures.) Manuscripts
that exceed this length may be returned without review. Authors do have the option
of electronically archiving supplemental material, such as tables and figures, in
order to assist them in keeping their articles to the required length. (See below.)

While Psychological Trauma primarily publishes original empirical studies, we are
also open to reviewing high quality literature reviews and clinical, qualitative,
thoretical and policy articles.

Manuscript Preparation

Until May 31st 2020, prepare manuscripts according to the Publication Manual of
the American Psychological Association using the 6th or 7th edition. Starting June
1st 2020, all manuscripts should be submitted in the 7th edition. Manuscripts may
be copyedited for bias-free language (see Chapter 3 of the 6th edition or Chapter 5
of the 7th edition).
Review APA's Journal Manuscript Preparation Guidelines before submitting your article.

Double-space all copy. Other formatting instructions, as well as instructions on preparing tables, figures, references, metrics, and abstracts, appear in the Manual. Additional guidance on APA Style is available on the APA Style website.

**Tables**

Use Word's Insert Table function when you create tables. Using spaces or tabs in your table will create problems when the table is typeset and may result in errors.

**APA Style Journal Article Reporting Standards (JARS)**

Authors should review the updated APA Style Journal Article Reporting Standards (JARS) for quantitative, qualitative, and mixed methods research before submitting. These standards offer ways to improve transparency in reporting to ensure that readers have the information necessary to evaluate the quality of the research and to facilitate collaboration and replication. For further resources, including flowcharts, see the Journal Article Reporting Standards (JARS) website.

**Academic Writing and English Language Editing Services**

Authors who feel that their manuscript may benefit from additional academic writing or language editing support prior to submission are encouraged to seek out such services at their host institutions, engage with colleagues and subject matter experts, and/or consider several vendors that offer discounts to APA authors. Please note that APA does not endorse or take responsibility for the service providers listed. It is strictly a referral service. Use of such service is not mandatory for publication in an APA journal. Use of one or more of these services does not guarantee selection for peer review, manuscript acceptance, or preference for publication in any APA journal.

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APA can place supplemental materials online, available via the published article in the PsycARTICLES® database. Please see Supplementing Your Article With Online Material for more details.

Abstract and Keywords
All manuscripts must include a structured abstract divided into the following sections, with headings: Objective, Method, Results, and Conclusions. The Objective should clearly communicate the novel contribution of the manuscript. In the Conclusion, please identify at least one specific implication and avoid boilerplate language such as 'Implications will be discussed.' The abstract should be no longer than 250 words and should be followed by five keywords, or brief phrases.

Clinical Impact Statements
Authors are asked to include a short statement of no more than 100 words, written in conversational English, that summarizes the article's findings and why they are important to practice. This new article feature allows authors greater control over how their work will be interpreted by a number of audiences (e.g., practitioners, policy makers, news media).
This text should appear in your manuscript, below the abstract, in a section titled "Clinical Impact Statement."
Please refer to the Guidance for Translational Abstracts and Public Significance Statements page to help you write this text.

References
List references in alphabetical order. Each listed reference should be cited in text, and each text citation should be listed in the References section.
Examples of basic reference formats:
• Journal Article:

- Authored Book:

- Chapter in an Edited Book:

Figures

Graphics files are welcome if supplied as Tiff or EPS files. Multipanel figures (i.e., figures with parts labeled a, b, c, d, etc.) should be assembled into one file.

The minimum line weight for line art is 0.5 point for optimal printing.

For more information about acceptable resolutions, fonts, sizing, and other figure issues, please see the general guidelines.

When possible, please place symbol legends below the figure instead of to the side.

APA offers authors the option to publish their figures online in color without the costs associated with print publication of color figures.

The same caption will appear on both the online (color) and print (black and white) versions. To ensure that the figure can be understood in both formats, authors should add alternative wording (e.g., "the red (dark gray) bars represent") as needed.

For authors who prefer their figures to be published in color both in print and online, original color figures can be printed in color at the editor's and publisher's discretion provided the author agrees to pay:

- $900 for one figure
• An additional $600 for the second figure
• An additional $450 for each subsequent figure

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Wellcome Trust or Research Councils UK Publication Rights Form (PDF, 34KB)

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Authors are required to state in writing that they have complied with APA ethical standards in the treatment of their sample, human or animal, or to describe the details of treatment.

- Download Certification of Compliance With APA Ethical Principles Form (PDF, 26KB)


**Other Information**

Visit the Journals Publishing Resource Center for more resources for writing, reviewing, and editing articles for publishing in APA journals.
Section 7: Ethical Approval

Health and Social Care Research Ethics Committee A (HSC REC A)

21 May 2019

Dr Donncha Hanna
School of Psychology, David Keir Building
18-30 Malone Road
Belfast
BT9 5BN

Dear Dr Hanna

Study title: Exploring Post-traumatic Growth in the Context of Northern Ireland Troubles
REC reference: 19/NI/0090
Protocol number: B19/09
IRAS project ID: 233373

Thank you for your letter of 17 May 2019, 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.

We plan to publish your research summary wording for the above study on the HRA website, together with your contact details. Publication will be no earlier than three months from the date of this opinion letter. Should you wish to provide a substitute contact point, require further information, or wish to make a request to postpone publication, please contact hra.studyregistration@nhs.net outlining the reasons for your request.

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.

Conditions of the favourable opinion

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

Providing Support to Health and Social Care
Management permission must be obtained from each host organisation prior to the start of the study at the site concerned.

Management permission should be sought from all NHS organisations involved in the study in accordance with NHS research governance arrangements. Each NHS organisation must confirm through the signing of agreements and/or other documents that it has given permission for the research to proceed (except where explicitly specified otherwise).

Guidance on applying for HRA and HCRW Approval (England and Wales)/ NHS permission for research is available in the Integrated Research Application System, at www.hra.nhs.uk 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 management permissions from host organisations.

Registration of Clinical Trials

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

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

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

If a sponsor wishes to request a deferral for study registration within the required timeframe, they should contact hra.studyregistration@ehs.net. The expectation is that all clinical trials will be registered, however, in exceptional circumstances non registration may be permissible with prior agreement from the HRA. Guidance on where to register is provided on the HRA website.

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).

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).

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>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence of Sponsor Insurance or Indemnity (non NHS Sponsors only)</td>
<td>1</td>
<td>16 July 2018</td>
</tr>
<tr>
<td>[IRAS Application Form [IRAS_Form_12042019]]</td>
<td></td>
<td>09 April 2019</td>
</tr>
</tbody>
</table>
Statement of compliance

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

After ethical review

Reporting requirements

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

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

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

User Feedback

The Health Research Authority is continually striving to provide a high quality service to all applicants and sponsors. You are invited to give your view of the service you have received and the application procedure. If you wish to make your views known please use the feedback form available on the HRA website: http://www.hra.nhs.uk/about-the-hra/governance/quality-assurance/

HRA Learning
We are pleased to welcome researchers and research staff to our HRA Learning Events and online learning opportunities—see details at: https://www.hra.nhs.uk/planning-and-improving-research/learning/

19/INI/0090 Please quote this number on all correspondence

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

Yours sincerely

Dr. Alastair Walker
Chair

Email: RECA@hscni.net

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

Copy to: Mrs Louise Dunlop, Queens University Belfast
Section 8: Trust Governance Approval

8.1. Northern Health and Social Care Trust Governance Approval

Final Research Governance Permission
15 August 2019

Dr Donncha Hanna
Research coordinator Doctorate of Clinical Psychology
Queens University Belfast
School of Psychology
David Keir Building
18-30 Malone Road
Belfast
BT9 5BN

Dear Dr Hanna

Study Title: Posttraumatic Growth among survivors of the Ri Troubles
NHSCT Ref: NT19-0676-06
REC Ref Number: 19/NI/0090
IRAS project ID: 255373

I am pleased to advise that the Northern Health & Social Care Trust has given Final Research Governance Permission for the above project to commence. Permission is granted for the duration of the project to 30 May 2021.

The following documents have been approved for use in the project:

<table>
<thead>
<tr>
<th>Document</th>
<th>Version</th>
<th>Dated</th>
</tr>
</thead>
<tbody>
<tr>
<td>IRAS FORM 255373/1319937/37/377</td>
<td>signed</td>
<td>08.04.19</td>
</tr>
<tr>
<td>Appendix III. Participant Consent Form</td>
<td>V1</td>
<td>24.03.19</td>
</tr>
<tr>
<td>Appendix I PIS</td>
<td>V1</td>
<td>24.03.19</td>
</tr>
<tr>
<td>Appendix II. Participant reply slips</td>
<td>V1</td>
<td>24.03.19</td>
</tr>
<tr>
<td>Appendix IV debrief sheet</td>
<td>V1</td>
<td>24.03.19</td>
</tr>
<tr>
<td>Large scale research proposal</td>
<td>V1</td>
<td>27.12.18</td>
</tr>
<tr>
<td>Appendix VI Battery of measures questionnaire</td>
<td>V1</td>
<td>24.03.19</td>
</tr>
</tbody>
</table>

NHSCT Research Office Room 3 Bush House Bush Road Antrim BT41 2QB
Tel: 02894424751 http://www.northerntrust.hsoni.net/about/1327.htm

@NHSCT Trust

Northern Health and Social Care Trust

"To deliver excellent integrated services in partnership with our community"
The following personnel have been approved to work on the study at this Trust:

<table>
<thead>
<tr>
<th>Name</th>
<th>Indemnity Provided by</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dr David Curran</td>
<td>NHSCRT</td>
</tr>
<tr>
<td>Ms Amanda Gleeson</td>
<td>QUB</td>
</tr>
</tbody>
</table>

Permission is granted subject to the attached conditions and I would ask you to please ensure that all members of the research team are familiar with these. Failure to abide by these conditions will invalidate permission and may result in the cessation of the research.
I wish you every success with your project.
Yours sincerely,

Dr Desmond Rooney
Head of NHSCT R&D

CC: Dr. David Curran, QUB
Ms Amanda Gleeson, QUB
Mrs Louise Dunlop, QUB
8.2. Belfast Health and Social Care Trust Approval

Placement Agreement (non HSC/NHS staff)
The Belfast Health and Social Care Trust agree that Amanda Gleeson from Queen's University Belfast can undertake placement activity within the Trust facilities for the period from 25-07-20019 to 30-05-21 for the purposes of conducting the research project entitled Exploring Post-traumatic Growth in the Context of Northern Ireland Troubles, with Mary Corry acting as Principal Investigator.

Queen's University Belfast confirms that:
- There are no outstanding or current disciplinary issues in relation to the named individual that would pose a risk to patient/client safety that need to be shared with the Trust.
- The named individual has completed the relevant BHSCIT documentation in relation to their placement activity request e.g. Confidentiality Agreement, Health Declaration, Access NI check (where appropriate).
- The named individual is eligible to work in the UK.
- The named individual is 'fit' for duty in accordance with Occupational Health requirements.
- The named individual is suitably qualified and is on the relevant live register (if applicable). In the instance of Medical staff this must also confirm they have a relevant licence to practice.
- The named individual has received appropriate training.
- Any agreed Recharge arrangements have been put in place.
- The named individual holds a valid driving licence which facilitates the relevant categories required, if applicable.
- A separate form of indemnity agreement has been provided to the Trust where applicable.
Queen's University Belfast

Signed: Pauline Adair
Name: Pauline Adair
Position: Programme Director
Date: 02/08/19

Placement Individual

Signed: Amanda Gleeson
Name: Amanda Gleeson
Position: Trainee Clinical Psychologist, and lead researcher
Date: 1/8/19

BHSCT Principal Investigator

I confirm agreement to facilitate the above individual's placement within the Trust. I will formally check their personal ID and provide any local departmental induction required for the placement individual on arrival to the work area.

Signed: Mary Corr
Name: Mary Corr
Position: Principal Investigator and Service Manager, Trauma Resource Centre.
Date: 1/8/19

BHSCT Research Office

Signed: Alison Murphy
Name: Alison Murphy
Position: Research Manager
Date: 21/8/19
All placement individuals are expected to abide by corporate policy and procedures in respect of the use of IT and communications equipment; a full copy of these are held by your BHSCT placement contact or can be accessed on the Trust’s intranet system. You should ensure that you familiarize yourself with these. Your attention is drawn to legislation, which includes the Data Protection Act and the Computer Misuse Act, contravention of which could lead to possible legal action/prosecution. Particular care must be taken when using e-mail and the intranet. Monitoring of all telephone and information systems takes place in the Trust.

I have received a copy of the BHSCT ICT Security Policy and the BHSCT Social Media Policy.

I agree to be bound by all BHSCT policies and conditions regarding the use and access of Trust equipment/data infrastructure.

I understand a breach in Trust Policies may amount to termination of access with the Belfast Health and Social Care Trust and/or cessation of my placement.

I agree to only use Trust information and data for the purpose of the agreed business which includes but is not limited to information, knowledge or data however disclosed including copies which are of intellectual, technical, scientific, financial or commercial which are not in the public domain.

I understand that my use of Trust facilities and systems will be logged and may be monitored.

I understand this includes the prohibition of sharing any information obtained in the course of this placement in social networking communication.

This agreement will come into effect on 25-07-2019 and will remain effective after the placement has ended.

I confirm that I have read and understand the statement above and I agree to the conditions set out above:

Placement Individual: Amanda Gleeson
(Signature)
Amanda Gleeson
(PRINT NAME)
Trainee Clinical Psychologist and Lead Researcher
(Title) if appropriate
1/8/19
(Date)

Research Office to complete:

(Signature)
Aisla Murphy
(PRINT NAME)
Trainee Clinical Psychologist and Lead Researcher
(BHSCT Role Title)
21/8/19
(Date)
Health Declaration

Pre-Placement Health Assessment

Thank you for the interest you have shown in visiting the Belfast Health and Social Care Trust on placement activity.

As you may come in contact with patients/clients, it is important that your health does not pose any risks either for yourself or the patients, clients and staff of the hospital. I would therefore be grateful if you would consider if any of the following situations are relevant to you:

- If you are currently suffering from an infectious illness such as Chicken Pox, Measles or German measles (rubella), T.B., or a flu-like illness
- If you have recently been in close contact with someone suffering from such an illness
- If you have any illness or you are on any treatment that might make you vulnerable to infection

If you think any of these situations apply to you please declare this to the Research Office prior to the start of your placement.

If you wish to discuss this or if you would like any other health advice relating to your placement please contact the Trust Occupational Health Service, 028 90040401 and ask to speak to an Occupational Health Professional. Your call will be dealt with confidentially.

Signed by Placement Individual: [Signature]
Date Completed: 1.8.19

Follow up actions: [Signature]
Date Completed: 21/8/19

Signed by Research Office: [Signature]
Date Completed: 21/8/19
Section 9: Reflective Appendix

Introduction

Below are my reflections on the challenges faced throughout the conduction of the research component of the doctorate in clinical psychology. I also consider skills gained, strengths realised and areas for future growth. I hear many trainees report that research is the area of clinical training where self-efficacy is the lowest, and I am no different. The thought of what was to come in the research programme on the course filled me with anxiety and overwhelm. However, I realised that I had more skills than I had been aware of. Having the guidance of a skilled research team was inherently helpful to support learning, and challenge me to gain skills in areas that I had not before. One of the overarching challenges of this research was the role of external factors. Writing up a thesis while the world around me grappled with a global pandemic felt strange. There was also the added challenge of being physically separated from classmates during this time, which made the process feel more isolating. Family ill-health also played a role in providing barriers to progression. However, it was nothing if not demonstrative of the challenges of conducting research in the real world.

Systematic review

The systematic review was the element of the research portfolio that filled me with the most dread, having never completed one before. I had conducted a literature review in my masters’ degree, but did not feel that this prepared me in any capacity. I am never one to shy away from a challenge, and I decided to do a meta-analysis, if possible with my review question, as I felt I could learn the most from this methodology. I was pleasantly surprised
to really enjoy the process. I found the systematic nature of conducting the review provided some predictability while in the middle of data collection for my large scale research project, where I had little control over what was happening. I also enjoyed being able to contribute to the literature base in an area that I was personally interested in and passionate about. The competencies gained will also benefit other areas of my work, particularly that of literature searching. This will support me in my role as a scientist practitioner in being able to systematically search databases for the most relevant literature. I think my prior planning, before conducting the review, really streamlined the process, and helped to reduce issues as the process progressed. However, having now conducted a systematic review and learning from the process, I would implement more planning into the initial stages if conducting one again.

**Large Scale Research Project**

Completing the large scale research study was perhaps the most challenging element of the research portfolio, again providing an accurate depiction of the challenges that are faced when conducting research. The process of governance changed mid-way through application for ethical approval, which added lots more paper work, worry and time into the process. I learned quickly that research timelines are very rarely conducted as ambitiously planned. I also lost a member of my research team quite early on, who had a pivotal role. Juggling an increased workload, and uncertainty about the future of the project was emotionally very challenging. However, I realised that I have skills in adapting to challenges and reorienting my focus to incorporate new circumstances.
The process I enjoyed the most was data collection. I found the lack of controllability over this process emotionally difficult, but the enthusiasm and passion that clinicians and participants had for my project reignited a passion in me for the area that had been lost to the stress of the process. This process made me realise that I had skills in organisation, communication and liaison that I had not before realised. I was so in awe of all the participants I met who were so willing to meet with a stranger, with an unusual accent, and trust them with their difficult experiences. I often asked them at the end of participating what had encouraged them to do so, and nearly all of them responded that they wanted to help others, which to me really signified posttraumatic growth. However, I found the maintenance of boundaries, in my role as researcher, the most challenging. The questionnaires triggered a lot of discussion and sense-making on the part of participants, and many were eager to talk through this. In my role as clinician on clinical placements, the ability for clients to make links between past and present and make sense of their distress is often an aim of intervention. However, in my capacity as researcher, I was unable to facilitate this. Instead, I oriented these participants to their clinician and politely reminded them of my role. I found this personally challenging, as trauma is a presentation that I am passionate about working with, and the imposition of boundaries on these conversations was difficult.

Writing the project up for publication facilitated gaining new skills. As I am new to the process of publication, this was a new way of presenting written material and was initially quite challenging. I realised quickly how different this was to presenting work for academic submission. However, I
am glad of the skills gained in the communication and dissemination of research findings, as I feel this will benefit me as I begin to work as a clinical psychologist.

**Conclusion**

Overall, despite the challenges faced in the conduction of these two pieces of research, I have gained valuable skills and competencies that will support me in my role as scientist practitioner in my career. The completion of these two projects under the invaluable guidance of my research team has provided me with a really solid grounding for the conduction of research in my career to come.