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Understanding vicarious trauma and vicarious posttraumatic growth

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Understanding Vicarious Trauma and Vicarious Posttraumatic Growth

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Submitted in part fulfillment of the Doctorate in Clinical Psychology
School of Psychology
Queens University Belfast

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The Meta-Analytic Relationship Between Vicarious Trauma and Vicarious Posttraumatic Growth in Adults

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Abstract

Despite continued growth in the literature on vicarious posttraumatic growth (VPTG), inconsistencies continue to present in terms of its relationship with vicarious trauma or secondary traumatic stress (STS). This meta-analysis aimed to explore the linear relationship between VT and VPTG. Systematic literature searches were conducted using the CINAHL Plus, PsychINFO, PTSD Pubs, SCOPUS and Web of Science databases, resulting in the inclusion of 19 relevant studies involving 4682 participants vicariously exposed to trauma. A random effects model meta-analysis determined a small significant positive effect size ($r = .26$), suggesting that VT may be positively associated with VPTG. Further research is required to determine what factors may modify this relationship.

Keywords:

Trauma, vicarious trauma, secondary traumatic stress, vicarious posttraumatic growth.
The Meta-Analytic Relationship Between Vicarious Trauma and Vicarious Posttraumatic Growth in Adults.

The trauma types for a diagnosis of PTSD in the Diagnostic and Statistical Manual of Mental Disorders (DSM–5; American Psychological Association, 2013) include occupational exposure to repeated or extremely aversive details of traumatic events. The psychological significance of indirect exposure to trauma is well established in the literature. McCann and Pearlman (1990) coined the term ‘vicarious traumatization’ in response to observing in helping professionals working with trauma victims’ profound negative changes in schemas (i.e., beliefs about the self, others and the world). Figley (1995) went on to describe as ‘secondary traumatic stress’ the phenomenon of clinicians mirroring their client’s posttraumatic stress disorder (PTSD) symptoms (including flashbacks, nightmares, avoidance). Although some researchers assert that vicarious trauma (VT) and secondary traumatic stress (STS) are distinct concepts, with VT referencing changes to cognitive schemas and frames of reference and STS referencing more specific PTSD-like symptoms (e.g., Jenkins & Baird, 2002), the terms are more often used interchangeably in the literature to reference the negative impacts of indirect trauma exposure. In the interest of clarity, given there is overlap in some definitions used by researchers and a lack of agreement on whether these differences exist (Leinweber & Rowe, 2008), the term “vicarious trauma” will be used henceforth in this review and considered to be describing experiences relevant to both VT and STS. It is worth noting that the term compassion fatigue has also been used interchangeably with STS or VT by some researchers. However, Stamm (2010) asserts that compassion fatigue refers to STS combined with experiences of burnout and this definition appears to be the most consistently used within the literature (Cavanagh et al., 2020).
As the evidence for potential negative impacts of VT exposure has grown, so too has the evidence for potential positive sequelae coming from the struggle to make sense of stressful or life-threatening events (Manning-Jones, de Terte & Stephens, 2015). Vicarious posttraumatic growth (VPTG) has been defined as positive psychological changes across the domains of self-perception, interpersonal relationships, and life philosophy derived from vicarious traumatic exposure (Arnold et al., 2005) and has been reported in a range of populations, including health professionals and members of the public (Manning-Jones et al., 2015).

Similar to research on the relationship between trauma and posttraumatic growth in those directly experiencing a traumatic event, research on the relationship between VT and VPTG has been inconsistent (Dar & Iqbal, 2020). In a review on the literature of VPTG, Manning-Jones et al. (2015) assert that the nature of how VT and VPTG present may suggest they represent opposite ends of the same spectrum, with VT symptoms reflecting the negative impacts of VT exposure and VPTG reflecting the positive. However, studies have found a positive relationship between VT symptoms and VPTG (e.g., Kjellenberg et al., 2014) which supports the original theoretical model of posttraumatic growth in PTSD survivors proposed by Tedeschi and Calhoun (2004), where distress and growth can co-exist and develop simultaneously. This formulation suggests that one may first need to experience distress to experience growth. Yet, Manning-Jones et al.’s (2015) review also reported that some studies have found no relationship between VT and VPTG, while another (Shiri et al., 2008a) reported the relationship is best explained by a curvilinear model, which would suggest that both constructs increase linearly until a certain point at which stage VT levels continue to grow in severity, but vicarious growth levels start to decrease. However, the same authors (Shiri et al., 2008b) failed to replicate the curvilinear results in a subsequent study, instead
reporting a linear relationship between the constructs. Although a more recent study by Dar and Iqbal (2020) also suggested a curvilinear association between VT and VPTG, the inconsistencies across studies point to a lack of clarity regarding the nature of the linear relationship between VT and VPTG and whether one must experience to vicarious distress to experience vicarious growth, in the first instance.

The aim of this meta-analysis was to assess the magnitude of the linear relationship and pooled effect size between VT and VPTG, while also summarizing the characteristics and quality of quantitative research in this relatively new area of study.

**Method**

**Search strategy**

The protocol for this review was registered and published in advance with Prospero (registration number: CRD42020208927). Searches were conducted using CINAHL Plus, PsychINFO, PTSD Pubs, SCOPUS and Web of Science, with final searches taking place on 16 November 2020. As per PRISMA guidelines (Page et al., 2020), the search terms used for each database are presented in Table 1. In an effort to reduce potential publication bias, hand searches were also conducted of the grey literature using Google Scholar and via an online grey literature source (“Grey net”, Grey Literature Network Service, n.d.).

**Eligibility criteria**

Studies were deemed eligible for inclusion if they met the following criteria: (a) participants were adults (over the age of 18) who had been vicariously exposed to trauma, (b) vicarious trauma or secondary traumatic stress was quantitatively measured, (c) vicarious posttraumatic growth was quantitatively measured (with the vicarious aspect of
the growth explicitly reflected in the measurement), (d) the correlational relationship between VT and VPTG was examined, and (e) the paper was available in English.

Table 1

Summary of search strategies.

<table>
<thead>
<tr>
<th>Database</th>
<th>Search Strategy</th>
</tr>
</thead>
<tbody>
<tr>
<td>CINAHL Plus</td>
<td>(“compassion fatigue” (subject heading) OR “vicarious experience*” OR “vicarious trauma” OR “indirect trauma” OR “secondary trauma*”) AND (“posttraumatic growth, psychological (subject heading)” OR growth)</td>
</tr>
<tr>
<td>PsychINFO</td>
<td>(Vicarious experiences (subject heading) OR Compassion Fatigue (subject heading) OR vicarious trauma OR indirect trauma OR secondary trauma*) AND (posttraumatic growth (subject heading) OR growth)</td>
</tr>
<tr>
<td>PTSD Pubs</td>
<td>(“compassion fatigue” OR “vicarious experience*” OR &quot;vicarious trauma&quot; OR &quot;indirect trauma&quot; OR &quot;secondary trauma*&quot;) AND growth</td>
</tr>
<tr>
<td>SCOPUS</td>
<td>(“compassion fatigue” OR “vicarious experience*” OR &quot;vicarious trauma&quot; OR &quot;indirect trauma&quot; OR &quot;secondary trauma*&quot;) AND growth</td>
</tr>
<tr>
<td>Web of Science</td>
<td>(“compassion fatigue” OR “vicarious experience*” OR &quot;vicarious trauma&quot; OR &quot;indirect trauma&quot; OR &quot;secondary trauma*&quot;) AND growth</td>
</tr>
</tbody>
</table>

Study Selection

A total of 580 publications were identified through database searching (58 from CINAHL Plus, 157 from PsychINFO, 29 from PTSDPubs, 165 from SCOPUS and 171 from Web of Science). These publications were transferred to Endnote which identified 235 duplicates, leaving 345 records for review. Titles and abstracts of these papers were reviewed and obviously irrelevant papers (e.g., literature reviews, individual case studies, solely qualitative papers, papers related to medical trauma) were excluded, leaving 42 papers for full-text review.

Two members of the research team (EC, GK) independently reviewed these manuscripts according to the aforementioned inclusion criteria, leading to a further 30 studies being excluded. Of these, three included data duplicated in another paper, two
were qualitative studies, three were not research papers (e.g., reviews, guidelines) and 15 did not measure either VT or VPTG. In a further two cases it was not clear if VPTG had been explicitly measured or whether it was direct PTG measured in a vicariously traumatized sample and the researchers were contacted for clarification. Finally, five other researchers were contacted in cases where all inclusion criteria were met but correlational data was not reported, with one response received. Of 22 papers identified through the hand search of grey literature, 10 full text articles were assessed by the reviewers according to inclusion criteria, with four being excluded for either VT or VPTG not being measured. This left a total of 18 papers which included results from 19 studies (one paper detailed two studies and thus were treated as separate samples going forward) for inclusion in the meta-analysis (see Figure 1 for PRISMA flow diagram of study selection process). Cohen's Kappa for inter-rater reliability was calculated as 0.84 following review of full texts, indicating almost perfect agreement (McHugh, 2012). After discussion of any discrepancies, 100% agreement was reached.
Quality assessment

The quality of the identified studies in this meta-analysis was independently assessed by two members of the research team (EC, GK) using the Newcastle-Ottawa Quality Assessment Scale (NOS) adapted for cross-sectional studies (Modesti, Reboldi, Cappucio et al., 2016) which assesses 8 criteria scored across 3 domains of participant selection, comparability and outcomes (see Appendix A). Studies are given a total score of quality, with the highest possible score being 10 (Herzog, Alvarez-Pasquin et al., 2013). It was decided in advance that studies would not be excluded from analysis based on their quality assessment scores due to limited availability of data in the context of the research area being relatively recent.

Data extraction

For each included study, the following data were extracted (where available): author, sample size, mean age and standard deviation, country data collection took place, type of vicarious trauma exposure, level of vicarious trauma exposure, level of direct trauma exposure, measures used to calculate VT and VPTG, and effect sizes calculated as the Pearson’s correlation coefficient ($r$) between these two variables. Pearson’s coefficient was chosen as this was the commonly reported effect size among the sample. In studies where participants completed repeated measures, data was taken from the first time point only to eliminate potential practice effects or potential effects from intervention. A second reviewer (GK) independently extracted the data from a random sample of papers (25%) with 100% agreement.

Statistical analysis
In order to calculate an overall effect size, each $r$ value was transformed into Fisher’s $z$ values, a weighted Fisher $z$ mean score of the standard scores was calculated and then transformed back to a correlation coefficient. Heterogeneity between included studies was calculated using both chi-square (with significance level $p < .10$) and $I^2$ tests (with $I^2 < 30\%$ indicating mild heterogeneity, $I^2 > 30\% - \leq 50\%$ indicating moderate heterogeneity and $I^2 > 50\%$ indicating high heterogeneity) (Higgins & Thompson, 2002). A random effects model was utilized when high heterogeneity was detected in the sample. Publication bias was assessed using Begg’s test of funnel plot asymmetry. All statistical analyses were conducted using MedCalc Statistical Software version 19.7 (MedCalc Software Ltd., Ostend, Belgium, 2021).

Results

Study characteristics

Nineteen studies were included in the final review with data extracted from each study summarized in Table 1. A combined total of 4,682 participants vicariously exposed to trauma were included, with a (weighted) mean age of 34.21 and a pooled standard deviation (SD) of 9.23. Data was collected in the following countries: Israel (studies no. 1,2,9,16,17,18,19), the United States of America (USA; 3,7,8,15), Poland (4,5), Kashmir (6), Sweden (10), the Netherlands (11), New Zealand (12), Romania (13) and Jordan (14). In terms of population and context of vicarious trauma exposure, 15 studies related to health or social care professionals (1,2,3,4,5,6,7,8,9,10,12,13,15,16,17). The remaining four studies related to aid workers, police family liaison officers, siblings of veterans and children of ex-veterans (11,14,18,19, respectively). Of those studies related to health and social care professionals, seven reported the level of vicarious trauma exposure experienced by participants on a weekly basis (1,2,6,8,10,13,14). This ranged from an
average of 3.17 to 18.38 hours per week, with an overall (weighted) mean of 11.65 hours
vicariously exposed to trauma across the sample (pooled SD =9.81). Seven studies
reported the percentage of participants who experienced direct trauma exposure
(1,2,3,4,5,10,15). This ranged between 20% to 100%, with an average of 66.93%
participants reporting a direct trauma across these studies. Other studies used validated
measurement tools such as the International Trauma Questionnaire (Clotire et al., 2018)
(16), Life Events Checklist (Weathers et al., 2013) (18) and Traumatic Stress Schedule
(Weathers, Blake et al., 2013) (7,13) or asked participants how many “stressful” (11) or
“negative” (9) life events they have experienced to assess participants’ direct exposure to
trauma.

For VT levels, the majority of studies used the Secondary Traumatic Stress Scale
(STSS) (Bride et al., 2004) (1,2,3,4,5,6,9,12,13,16,17). Three studies (7,10,15) used the
secondary traumatic stress subscale of the Professional Quality of Life scale (PROQOL)
(Stamm, 2009), while the remaining studies used the Traumatic Stress Institute Belief
Scale-Revision L (TSI-BSL; Traumatic Stress Institute, 1994), secondary trauma subscale
of the Compassion Fatigue Scale–Revised–Short Scale (CF-Short; Adams et al., 2006),
the Trauma and Attachment Beliefs Scale (TABS; Pearlman, 2003), the PTSD inventory
(adapted for vicarious trauma) (Solomon et al., 1993) and the PTSD checklist for DSM-5
(PCL-5; Weathers et al., 2013) (adapted for vicarious trauma) (8,11,14,18,19,
respectively). All studies except one measured VPTG using the Posttraumatic Growth
Inventory (PTGI) in either full- or short-form that was adapted to ask participants to
explicitly reflect on the questions in the context of their vicarious trauma exposure. The
remaining study (7) used the Vicarious Posttraumatic Growth Inventory, an unvalidated
measurement tool which was the focus of the research paper.
Methodological Quality

Study quality scores ranged from 5-7 with a mean score of 5.72. Although no formal cut off scores exist for the quality assessment tool used, previous studies have suggested that a quality score above 3 on the original NOS is considered to represent “acceptable” quality and a score of ≥ 6 out of a possible 9 is considered to represent high quality (e.g., Ma et al., 2019). As the adapted version of the NOS for cross-sectional studies has a possible total score of 10, scores above 4 were deemed acceptable and scores ≥7 were deemed high quality in this meta-analysis. Based on these criteria, 68% of included studies scored “acceptable” (1,2,3,4,5,6,7,10,12,13,14,15,16) and 32% (8,9,11,17,18,19) of studies scored “high” in terms of quality. The main limitations in terms of methodological quality across studies were: incomplete information on sample size and non-respondents (1,2,3,4,5,6,7,10,12,13,14,15,16,17,18,19), failure to control for most important or additional confounding factor (3,4,5,14), all data being self-report (all studies) and failure to report complete information on statistical tests and results including confidence intervals (1,2,3,4,6,7,8,10,11,12,13,15,16). Overall quality scores per study can be seen in Table 1 and item-level scores on each domain assessed can be seen in Appendix B.

Effect size

For the relationship between VT and VPTG, individual effect sizes ranged from \( r = -0.03 \) to 0.59 (see Table 1). Three authors had more than one article included in the review (1,2,3,4,5,17,18,19) and reported similar effect sizes in their respective studies. This is likely due to researchers collecting data in similar settings and with similar psychometric measures. Only two of the 19 studies reported negative correlations (4,5), both of which shared authors and collected data in Poland. The negative correlations reported from these studies may reflect cultural differences in how VT and VPTG are
experienced or reflect how the researchers adapted their measures to Polish. The highest effect size reported amongst all studies was by Deaton (7). This was the only study not to use the PTGI as the measure of VPTG. Instead, it utilized a specific VPTG measure contextualized for helping professionals working with those traumatized.

A random effects model meta-analysis of all 19 studies determined a total effect size of .26, with a 95% confidence interval falling between .16 and .34. This mean effect size was statistically significant (p < .05), indicating that VT has a small positive relationship with VPTG (i.e., greater levels of VT are related to more growth). A forest plot of the relationship between VT and VPTG with individual study effects sizes (ES) and % weight contributed to overall effect size can be seen in Figure 2.

Significant heterogeneity among studies was observed (I^2 = 90.54%; p <.001). The effect sizes and levels of heterogeneity remained at similar magnitudes when the only two outlying studies with negative correlations (3,4) were removed (r = .29, I^2 = 87.82%; p <.001). When the study with the largest effect size and sample size was removed (5), the effect size also remained similar but heterogeneity reduced slightly (r = .23, I^2 = 75.69%; p <.001). Sub-group meta-analyses were also conducted which explored possible sources for this heterogeneity, as reported below. Regarding the assessment of publication bias and whether it impacted the mean effect size, no evidence was found of funnel plot asymmetry (Begg's p >.05) as seen in Figure 3.
Table 2
Summary of included studies

<table>
<thead>
<tr>
<th>Study no.</th>
<th>Authors</th>
<th>Population; type of vicarious trauma</th>
<th>n</th>
<th>Country</th>
<th>Mean age (SD)</th>
<th>VT measure</th>
<th>VPTG measure</th>
<th>Mean VT exposure per week in hours (SD)</th>
<th>Participants with direct trauma exposure (%)</th>
<th>r</th>
<th>QA rating</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Ben-Porat et al., 2015</td>
<td>Domestic violence therapists / therapists in social services (all social workers). Vicarious exposure to varied trauma type, mainly domestic violence.</td>
<td>214</td>
<td>Israel</td>
<td>39.11 (9.86)</td>
<td>STSS</td>
<td>PTGI (adapted)</td>
<td>15.55, (12.48)</td>
<td>50.7%</td>
<td>.26**</td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>Ben-Porat et al., 2020</td>
<td>Social work students. Vicarious exposure to varied trauma type.</td>
<td>259</td>
<td>Israel</td>
<td>24 (3.19)</td>
<td>STSS</td>
<td>PTGI (adapted)</td>
<td>4.82, (5.09)</td>
<td>20%</td>
<td>.37**</td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>Cieslak et al., 2013 (a)</td>
<td>Mental health care providers (clinical psychologists,</td>
<td>247</td>
<td>USA</td>
<td>48.59 (13.02)</td>
<td>STSS</td>
<td>PTGI-SF (adapted)</td>
<td>-</td>
<td>100%</td>
<td>.10</td>
<td>5</td>
</tr>
</tbody>
</table>
counsellors, social workers).

Vicarious exposure military service personnel, including military combat, physical assault, motor vehicle accidents and natural disasters.

<table>
<thead>
<tr>
<th></th>
<th>Study</th>
<th>Participants</th>
<th>Sample Size</th>
<th>Country</th>
<th>Mean (SD)</th>
<th>Measure</th>
<th>Version</th>
<th>% Change</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>Cieslek et al., 2013 (b)</td>
<td>Nurses, paramedics, social workers.</td>
<td>306</td>
<td>Poland</td>
<td>35.41 (8.59)</td>
<td>STSS</td>
<td>PTGI-SF (adapted)</td>
<td>-</td>
<td>75%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vicarious exposure to varied trauma type.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>Cieslek, 2016</td>
<td>Physicians, nurses, first responders, social workers, psychotherapists, teachers, educational professionals, counsellors, police, firefighters.</td>
<td>168</td>
<td>Poland</td>
<td>37.49 (10.39)</td>
<td>STSS</td>
<td>PTGI (adapted)</td>
<td>-</td>
<td>100%</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Vicarious exposure to varied trauma type.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>Dar, 2020</td>
<td>Physicians, psychiatrists and surgeons.</td>
<td>258</td>
<td>Kashmir</td>
<td>33.69 (nr)</td>
<td>STSS</td>
<td>PTGI-SF (adapted)</td>
<td>3.17 (2.04)</td>
<td>-</td>
</tr>
<tr>
<td>Study</td>
<td>Authors</td>
<td>Exposure Type</td>
<td>N</td>
<td>Country</td>
<td>Mean (SD)</td>
<td>Measure 1</td>
<td>Measure 2</td>
<td>r</td>
<td>n</td>
</tr>
<tr>
<td>-----------</td>
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<td>-------------------------------------------------------------------------------</td>
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<td>----</td>
</tr>
<tr>
<td>7</td>
<td>Deaton, 2020</td>
<td>Vicarious exposure to victims of ongoing conflict. Counselors, social workers, psychologists, interpreters, nurses, and medical professionals.</td>
<td>694</td>
<td>USA</td>
<td>39.8 (11.05)</td>
<td>PROQOL (STS scale)</td>
<td>VPTGI</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>8</td>
<td>Fedele, 2018</td>
<td>Domestic violence/rape crisis center workers, child protection case workers, other “crisis” workers.</td>
<td>149</td>
<td>USA</td>
<td>34.4 (11.50)</td>
<td>(TSI)- revision L</td>
<td>PTGI (adapted)</td>
<td>10.88 (2.58)</td>
<td>-</td>
</tr>
<tr>
<td>9</td>
<td>Hamma-Raz, 2018</td>
<td>Vicarious exposure to patients in medical rehabilitation setting. Nurses.</td>
<td>153</td>
<td>Israel</td>
<td>52 (10.60)</td>
<td>STSS</td>
<td>PTGI (adapted)</td>
<td>-</td>
<td>-</td>
</tr>
<tr>
<td>10</td>
<td>Kjellenberg et al., 2014</td>
<td>Nurses, physicians, physiotherapists, psychologists, secretaries, social workers, support workers, translators.</td>
<td>69</td>
<td>Sweden</td>
<td>50.36 (10.28)</td>
<td>PROQOL (STS scale)</td>
<td>PTGI (adapted)</td>
<td>18 (8.92)</td>
<td>91%</td>
</tr>
</tbody>
</table>
Vicarious exposure war and torture survivors

<table>
<thead>
<tr>
<th></th>
<th>Study</th>
<th>Sample</th>
<th>Country</th>
<th>Mean (SD)</th>
<th>Measure</th>
<th>PTGI</th>
<th>p-value</th>
</tr>
</thead>
<tbody>
<tr>
<td>11</td>
<td>Kunst, 2016</td>
<td>224</td>
<td>Netherlands</td>
<td>47.6 (7.8)</td>
<td>CF-Short (ST scale)</td>
<td>-</td>
<td>.17*</td>
</tr>
<tr>
<td>12</td>
<td>Mairean, 2016</td>
<td>162</td>
<td>Romania</td>
<td>30.02 (10.69)</td>
<td>STSS</td>
<td>-</td>
<td>-.19*</td>
</tr>
<tr>
<td>13</td>
<td>Manning-Jones et al., 2017</td>
<td>365</td>
<td>New Zealand</td>
<td>48.2 (nr)</td>
<td>STSS</td>
<td>13.48 (11.68)</td>
<td>.15**</td>
</tr>
<tr>
<td>14</td>
<td>Rizkalla &amp; Segal, 2020</td>
<td>317</td>
<td>Jordan</td>
<td>29.32 (7.91)</td>
<td>TABS</td>
<td>18.38 (13.76)</td>
<td>.20**</td>
</tr>
<tr>
<td>15</td>
<td>Woolof, 2018</td>
<td>381</td>
<td>USA</td>
<td>Nr</td>
<td>PROQOL (STS subscale)</td>
<td>-</td>
<td>61.1%</td>
</tr>
<tr>
<td>16</td>
<td>Yaakubov et al., 2020</td>
<td>Nurses and physicians</td>
<td>Vicarious exposure to trauma via working in emergency department setting.</td>
<td>163</td>
<td>Israel</td>
<td>37.14 (8.77)</td>
<td>STSS</td>
</tr>
<tr>
<td>17</td>
<td>Zahav, 2020</td>
<td>Social work students</td>
<td>Vicarious exposure to varied trauma type.</td>
<td>259</td>
<td>Israel</td>
<td>24 (3.19)</td>
<td>STSS</td>
</tr>
<tr>
<td>18</td>
<td>Zerach, 2015</td>
<td>Children of former prisoners of war and former veterans.</td>
<td>Vicariously exposed to parent’s war-related trauma.</td>
<td>188</td>
<td>Israel</td>
<td>33.08 (7.58)</td>
<td>PTSD inventory (adapted)</td>
</tr>
<tr>
<td>19</td>
<td>Zerach, 2020</td>
<td>Siblings of veterans</td>
<td>Vicariously exposed to parent’s war-related trauma.</td>
<td>106</td>
<td>Israel</td>
<td>25.18 (4.41)</td>
<td>PCL-5 (adapted)</td>
</tr>
</tbody>
</table>

Notes: *= p < .05. ** = p < .01 or p < .001, - = data not reported in format presented.
Figure 2. Forest plot for the relationship between VT and VPTG including ES and \% weight.

Figure 3. Funnel plot of correlations included in meta-analysis.
Sub-group analyses

Studies were stratified by population and trauma type to assess any potential moderating effects on the relationship between VT and VPTG. In the random effects sub-group meta-analysis by population, a greater effect size was found for studies involving family members (ES, 0.38; CI 0.28-.047) compared to those made up of various helping professionals (health and social care professionals, police, aid workers) (ES, 0.24; CI 0.14-0.33). However, it is important to note only 2 of the 19 studies reported findings from family members. In the sub-group meta-analysis by vicarious trauma type, correlation effect sizes for vicarious exposure to varied trauma types (k=10), conflict-related trauma (civilian) (k=4), conflict-related trauma (military) (k=3) and for VT via hospital-based settings (k=4) were all within the small positive range. Overall effects and subgroup analyses can be seen in Table 3.

Table 3

*Overall Effects and Subgroup Analyses of VT Associated With VPTG*

<table>
<thead>
<tr>
<th>Variables</th>
<th>k</th>
<th>n</th>
<th>Pooled ES</th>
<th>Heterogeneity</th>
<th>Begg’s</th>
<th>ES description</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>(95% CI)</td>
<td>I² (%)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>All</td>
<td>19</td>
<td>4682</td>
<td>0.26 (0.16-0.34)</td>
<td>0.94</td>
<td>Small</td>
<td></td>
</tr>
<tr>
<td>Population</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Helping pros.</td>
<td>17</td>
<td>4388</td>
<td>0.24 (0.14-0.33)</td>
<td>91.5</td>
<td>0.83</td>
<td>Small</td>
</tr>
<tr>
<td>Family members</td>
<td>2</td>
<td>294</td>
<td>0.38 (0.28-0.47)</td>
<td>0.0</td>
<td>0.32</td>
<td>Small</td>
</tr>
<tr>
<td>VT type</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Mixed | 10 | 3019 | 0.26 (0.11-0.41) | 94.7 | 0.71 | Small
Conflict-related (civilian) | 4 | 1009 | 0.21 (0.15-0.28) | 13.1 | 0.17 | Small
Conflict-related (military) | 3 | 541 | 0.29 (0.08-0.47) | 82.9 | 0.60 | Small
Via hospital setting | 4 | 736 | 0.23 (0.16-0.30) | 0.0 | 0.17 | Small

Note: $k$ indicates number of studies; $n$ indicates number of participants.

Discussion

This study aimed to investigate the magnitude of the relationship between VT and VPTG, given inconsistent results in the literature. A random-effects meta-analysis indicated that VT had a small but significant positive correlation with VPTG, suggesting that higher levels of secondary growth are associated with higher levels of secondary trauma. The overall pooled effect size for VT and VPTG (ES, 0.26; CI 0.16-.034) was similar to that of the overall effect size reported in a recent meta-analysis on the relationship between PTSD and PTG in direct trauma survivors (ES.0.22, CI 0.18 to 0.25) (Liu, Wang, Hui-Ping et al., 2017) suggesting that, similar to theories of PTG, VPTG may potentially arise as a result of the psychological struggle to make sense of the distressing events brought about by VT exposure. The small positive effect indicates that growth is far from an inevitable outcome of VT and given the toll secondary trauma can have on practitioners and those around them, the findings highlight the importance of effective
support for those experiencing vicarious trauma to ameliorate symptoms and facilitate any growth possible.

Sub-group analyses indicated that the association between VT and VPTG may be higher in family members exposed to vicarious trauma than in samples vicariously exposed to trauma via their professional context. However, caution is required as only two studies were included in the sub-analysis of family members. Nonetheless, this finding may be of importance as Manning-Jones et al. (2015) note posttraumatic growth in direct trauma survivors being a facilitative factor of VPTG in those around them, based on several qualitative studies. Children or siblings may have more opportunities to witness the personal growth and changes of traumatized family members than those vicariously witnessing trauma in professional contexts. Further studies of vicarious trauma and growth in individuals vicariously exposed to trauma outside professional roles are needed to explore these findings further, particularly as family members or other close associates of trauma survivors may be experiencing significant negative impacts of VT. Moreover, Liu, Wang, Hui-Ping, et al. (2017) found a stronger relationship between PTSD and PTG among child samples than among adults and so children of those who have experienced trauma may warrant particular attention.

Little substantial variance in the relationship between VT and VPTG was found based on vicarious trauma type, with all trauma types included in sub-group analyses reporting similar small positive relationships. This differs from findings of previous meta-analyses on direct PTSD and PTG where trauma involving conflict (military, civilian) or caregiving for a loved one was found to exhibit a stronger relationship between PTSD and PTG, compared to the relationship reported in individuals who experienced sexual abuse or assault (Liu et al., 2017, Shakespeare-Finch & Lurie-Beck, 2014). The sub-group analysis in relation to trauma type in the current review was limited by virtue of most
studies involving participants exposed to multiple trauma types. As literature in this area grows, it may be possible to distinguish whether similar patterns are observed in vicariously traumatized samples in relation to trauma type and growth.

This is the first quantitative synthesis and meta-analysis on the relationship between VT and VPTG. Furthermore, sub-group analyses allowed for preliminary exploration into the populations and contexts in which VT may be most likely to be associated with VPTG, indicating important areas for further research. This review was also strengthened by the inclusion of unpublished literature (i.e., dissertations), with quality assessment indicating low risk of publication bias across the sample. However, some limitations should be held in mind when interpreting the results. As there is yet to be a specific validated ‘gold standard’ measure of VPTG, the majority of studies in this area have relied on an adapted version of the PTGI (which is designed to measure direct PTG). Thus, only studies where the measure focused on the explicit vicarious nature of PTG were included. This strategy minimized the risk of including studies where direct PTG may have been measured in samples exposed to vicarious trauma. This may have potentially led to some related relevant data being omitted. The review only considered studies published in English, also potentially leading to some relevant data in other languages being missed. There was significant heterogeneity between study characteristics which were not explained by sub-group analyses and thus limits the generalizability of all findings. It would have been desirable to explore the potential moderating effects of amount of vicarious exposure and direct trauma exposure on the relationship between VT and VPTG given these factors are associated with higher levels of VT (Manning-Jones et al., 2015) and thus may have impacted results. It would also have been desirable to explore the potential effects of time since vicarious trauma exposure (or indeed if exposure is ongoing) given research in direct trauma samples has
suggested some time post-trauma maybe needed before PTG is reported (Morgan & Desmarais, 2017), but this was not possible in the existing sample given differences between studies in how data was collected and reported. The final limitation was the self-report nature of the data included in terms of VT and VPTG, as highlighted by the quality assessment. As perception of change often does not equate to actual change, this could lead to false self-reports of VPTG (Marziliano et al., 2019). It would therefore be desirable that future studies utilize informant reports or clinical interviews detailing participants’ presentations pre and post VT exposure as part of their methodology.

In summary, this review provides evidence of a significant small positive relationship between VT and VPTG, suggesting that distress and growth are unlikely to be independent of each other and that one should not assume that those who have experience VPTG will no longer experience VT, or vice versa. Yet, it also clear they are not strongly related. This review has highlighted the need for further research on levels of VT and VPTG in non-professional samples to inform potential systemic interventions needed for those with close relationships to direct trauma survivors. Future research should also focus on the potential impact of moderating factors such as amount of VT exposure and direct trauma exposure on the relationship between VT and VPTG using methods beyond cross-sectional self-report.
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Appendix A

NEWCASTLE - OTTAWA QUALITY ASSESSMENT SCALE (adapted for cross-sectional studies).

Selection: (Maximum 5 stars)
1) Representativeness of the sample:
   a) Truly representative of the average in the target population. * (all subjects or random sampling)
   b) Somewhat representative of the average in the target population. * (non-random sampling)
   c) Selected group of users.
   d) No description of the sampling strategy.
2) Sample size:
   a) Justified and satisfactory. *
   b) Not justified.
3) Non-respondents:
   a) Comparability between respondents and non-respondents characteristics is established, and the response rate is satisfactory. *
   b) The response rate is unsatisfactory, or the comparability between respondents and non-respondents is unsatisfactory.
   c) No description of the response rate or the characteristics of the responders and the non-responders.
4) Ascertainment of the exposure (risk factor):
   a) Validated measurement tool. **
   b) Non-validated measurement tool, but the tool is available or described.*
   c) No description of the measurement tool.

Comparability: (Maximum 2 stars)

1) The subjects in different outcome groups are comparable, based on the study design or analysis. Confounding factors are controlled.
   a) The study controls for the most important factor (select one). *
   b) The study control for any additional factor. *

Outcome: (Maximum 3 stars)

1) Assessment of the outcome:
   a) Independent blind assessment. **
   b) Record linkage. **
   c) Self report. *
   d) No description.
2) Statistical test:
   a) The statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association is presented, including confidence intervals and the probability level (p value). *
b) The statistical test is not appropriate, not described or incomplete.

This scale has been adapted from the Newcastle-Ottawa Quality Assessment Scale for cohort studies to perform a quality assessment of cross-sectional studies for the systematic review, “Are Healthcare Workers’ Intentions to Vaccinate Related to their Knowledge, Beliefs and Attitudes? A Systematic Review”. We have not selected one factor that is the most important for comparability, because the variables are not the same in each study. Thus, the principal factor should be identified for each study.

(Modesti et al., 2016)
### Appendix B

#### Quality assessment item-level scores.

<table>
<thead>
<tr>
<th>Study no.</th>
<th>Section 1: Selection (maximum 5*)</th>
<th>Section 2: Comparability (maximum 2*)</th>
<th>Section 3: Outcomes (maximum 3*)</th>
<th>Total quality score</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>* - - ** * * * -</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>2</td>
<td>* - - ** * * * -</td>
<td></td>
<td></td>
<td>6</td>
</tr>
<tr>
<td>3</td>
<td>* - - ** * - * -</td>
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<td>5</td>
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<tr>
<td>4</td>
<td>* - - ** * - * -</td>
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<td>5</td>
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<tr>
<td>5</td>
<td>* - - ** * - * *</td>
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<tr>
<td>17</td>
<td>* - - ** * * * * -</td>
<td></td>
<td></td>
<td>7</td>
</tr>
</tbody>
</table>
18 | * | - | - | ** | * | * | * | * | 7
19 | * | - | - | ** | * | * | * | * | 7

Note: 1.1, * = truly or somewhat representative of the average in the target population, - = no description of sampling strategy, 1.2* = justified or satisfactory sample size, - = not justified, 1.3, - = no description of the response rate or the characteristics of the responders and the non-responders, 1.4, **= validated measurement tool. 2.1, * = the study controls for most important factor, 2.2, * = the study controls for additional factor, - = study does not control for important or additional factors. 3.1, * = self-report data, 3.2, * = the statistical test used to analyze the data is clearly described and appropriate, and the measurement of the association is presented, including confidence intervals and the probability level (p value), - = the statistical test is not appropriate, not described or incomplete.
Predicting Secondary Traumatic Stress and Vicarious Posttraumatic Growth in Psychological Therapists

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Abstract

The potential negative repercussions of working as a psychological therapist have been well documented within the literature, however there is growing interest in potential positive impacts of engaging in such work. The current study explored a range of demographic, work-related and intrapsychic factors as potential statistical predictors of secondary traumatic stress and vicarious posttraumatic growth in an international sample of 359 psychological therapists, utilizing a cross-sectional, online survey design. Hierarchical multiple regressions demonstrated that burnout, lower levels of self-compassion, having a personal trauma history, higher percentage of working time with a trauma focus, and being female significantly predicted secondary traumatic stress, with a final model of these statistical predictors explaining 40.8% of variance. For VPTG, higher compassion satisfaction, higher self-compassion, higher STS, higher percentage of time working with a trauma focus, less years qualified, being male and having a personal trauma history were the significant predictors, explaining 27.3% of variance. The findings illustrate potential risk and protective factors for developing secondary traumatic stress as well as factors which may increase likelihood of experiencing vicarious posttraumatic growth. Implications for psychological therapists and the organizations and institutions in which they work are considered in the discussion in addition to potential future directions for research.

Keywords:

Trauma, Vicarious trauma, secondary traumatic stress, vicarious posttraumatic growth, psychological therapists.
Predicting Secondary Traumatic Stress and Vicarious Posttraumatic Growth in Psychological Therapists

The work of psychological therapists involves potentially high levels of exposure to detailed accounts of traumatic events experienced by their clients. It has been well established that this type of vicarious exposure to trauma can have a significant negative impact on their psychological wellbeing, including secondary traumatic stress (STS) (Bride et al., 2004). STS symptoms have been described as similar to that of posttraumatic stress disorder (PTSD) symptoms (e.g. intrusive re-experiencing of traumatic material, increased arousal, avoidance of emotions), and occur in individuals who have been indirectly exposed to trauma (Bride et al, 2004). The terms vicarious trauma (VT) and compassion fatigue are often used in the literature as synonyms for STS (Kjellenberg et al., 2014), although some researchers argue that clearer distinctions should be made between the concepts (Bourke & Craun, 2004). Stamm (2010) asserts that compassion fatigue is not a term to be used interchangeably with STS, but rather describes the experience of STS combined with burnout. Burnout is characterized by a persistent state of mental and physical exhaustion as a result of work-related demands (Bratis et al., 2009) which usually emerges over time and is not exclusive to those that work with individuals who have experienced trauma, unlike STS (Sodeke-Gregson et al., 2013). It has been estimated that the prevalence of STS within a clinical range of severity among therapists may be between 5 and 15% (Bercier & Maynard 2014). Given this prevalence of STS, not only in therapist samples but across many occupational groups (Cieslak et al., 2013), increased empirical attention has been directed towards understanding its development, and the wider implications of working with psychological trauma.
While the potential adverse effects for psychological therapists engaged in delivering trauma focused interventions is well documented, the potential positive outcomes for clinicians are less well-understood. Posttraumatic growth (PTG) refers to positive cognitive, emotional, interpersonal and spiritual consequences that one may experience following a traumatic experience (Tedeschi & Calhoun, 2004). PTG is believed to occur across three domains of self-perception, interpersonal relationships, and life philosophy, leading to changes such as realizing personal strength, seeing new possibilities for the future, and having a new appreciation for life. These changes are believed to occur as a result of the psychological struggle to make meaning of the trauma that has occurred and the distress it has caused (Tedeschi & Calhoun, 2004). PTG has been associated with positive outcomes such as greater life satisfaction and emotional wellbeing (Manning-Jones et al., 2015). A related concept, vicarious posttraumatic growth (VPTG), is particularly relevant to clinicians practicing in the area of psychological trauma. VPTG refers to positive changes occurring because of vicarious trauma exposure (e.g., a clinician exposed to a client trauma narrative recounted in-session; Arnold et al., 2005). In a review of the research on VPTG to date, Manning-Jones, de Terte and Stephens (2015) assert that while PTG and VPTG are similar, there are also subtle differences between the concepts. The authors suggest that VPTG may be less integrated with a person’s self-concept than PTG but more enmeshed with their professional identity and perceptions of clinical competence, likely as a reflection of the context in which VT exposure has occurred. Given the consistent relationship that has been found between therapist wellbeing and successful therapy outcomes in the literature (Beutler et al., 2004), understanding what demographic, personal and professional factors may contribute to STS or promote VPTG could inform potential initiatives to prevent
adverse impacts of vicarious trauma exposure, enhance staff wellbeing and in turn, improve client outcomes.

Tedeschi & Calhoun’s original theoretical model of PTG (2004) suggests that post-traumatic stress and growth co-exist; however, research on the nature and directionality of this relationship has been inconsistent (Shakespeare-Finch & Lurie-Beck, 2014), as have the findings on the association between STS and VPTG (Manning-Jones et al., 2015). Some studies have found a positive correlation between the two constructs, suggesting that they may develop concurrently or that higher levels of STS increase the likelihood of VPTG as the growth is dependent on the appraisals of the traumatic material as stressful (e.g., Kjellenberg et al., 2014). Other investigations have reported alternative findings, ranging from no association between VPTG and STS (e.g. Manning-Jones et al., 2017) to a curvilinear or quadratic relationship between the two constructs. With regard to the latter, VPTG has been found to increase linearly with STS until a maximum inflection point at which stage STS levels continue to grow in severity, but vicarious growth starts to attenuate (Dar & Iqbal, 2020). This is thought to be as a result of a “threshold effect” whereby individuals experience such high levels of PTSD or STS that they are unable to engage in the cognitive processing of their experiences required for growth to occur (Joseph, 2011).

A number of demographics, professional and intrapsychic variables have been associated with the development of both STS and VPTG, an overlap which may be explained by STS presenting as a prerequisite to vicarious growth. Having a history of personal trauma has been linked to a heightened risk of STS, based on the notion that indirect exposure to traumatic material may trigger previous traumatic experiences and reactions (Pearlman & MacIan, 1995). However, other studies have found no difference in STS levels amongst therapists with a history
of trauma compared to those without (e.g. Ortlepp & Friedman, 2002). The research is similarly unclear regarding history of personal trauma and VPTG, with some studies finding a positive association between the two (e.g. Kjellenberg et al., 2014) and others finding no association. Manning-Jones et al. (2015) suggest that individuals experiencing VPTG following vicarious trauma exposure may be dependent on how they have processed previous personal traumatic events. In terms of age and gender, there is some evidence to suggest that younger individuals (Ghahramanlou & Brodbeck, 2000) are more likely to experience STS, which may be related to trauma being more disruptive and less consistent with younger individuals’ world view, as has been suggested to explain similar results in children with PTSD compared to adults (Liu et al., 2017). Although there are no suggested theoretical connections between growth and age (Powell et al., 2003), some studies suggest younger individuals may also experience more growth, perhaps as they are more likely to experience more distress (Helgeson et al., 2006). It is unclear whether gender has an impact on STS, although research on PTSD has found that females are more likely to perceive situations as threatening and stressful and report higher levels of PTSD symptomology (Olff et al., 2007). Although Linley and Jospeh (2007) found female therapists more likely to report psychological growth, again perhaps due to more distress, other studies have reported no gender differences (e.g. Creamer & Liddle, 2005, Dar & Iqbal, 2020) and thus the relationship between gender and VPTG also remains unclear.

In terms of professional or organizational factors, having a caseload with greater numbers of clients with PTSD has been linked to heightened risk of STS (Craig & Sprang, 2010; Jenkins et al., 2011). This may be explained by the idea that “dose of exposure” can determine who will experience adverse impacts following trauma exposure (Craig & Sprang, 2010). However, Cunningham (2003) reported no relationship between number of trauma cases and levels of STS,
while other studies found that having more trauma cases was associated with lower levels of STS (e.g. Baird & Jenkins, 2003). Higher numbers of trauma cases per caseload has also been associated with more positive changes (Linley & Joseph, 2007) and cumulative exposure to clients with trauma has been found to be a predictor of vicarious growth (Brockhouse et al., 2011), with repeated exposure to trauma narratives potentially reinforcing changing cognitive schemas in the therapist over time (Brockhouse et al., 2011). With regards to professional experience, Creamer & Liddle (2005) found therapists with less experience were at higher risk of STS, perhaps due to lack of experience. However other studies suggest individuals with more experience are more likely to develop STS, which may be reflective of burnout in addition to impacts of vicarious trauma (Kjellenberg et al., 2014). Although Kejellenberg et al (2014) reported a positive association between years of experience and VPTG, overall, there is a lack of research on the potential impacts of professional experience on growth in therapists (Ben-Porat et al., 2015). Supervision may also have an important role in the development of both STS and VPTG as access to clinical supervision has been found to buffer against STS (Craig & Sprang, 2010) and satisfaction with clinical supervision has been found to be a predictor of VPTG (Ben-Porat et al., 2020), as it may give therapists a space to process their therapeutic experiences as well as identify areas of growth.

Although the concepts of STS and burnout are often grouped together as compassion fatigue (Stamm, 2010), there is emerging research to suggest that burnout may be an important predictor of STS (Shoji et al., 2015). Theoretically, this is based on the model of Conservation of Resources (Hobfall, 1989), where workplace or personal demands increase but resources to cope are depleted and thus individuals are more susceptible to negative effects such as STS (Shoji et al., 2015). Despite these potential negative impacts, therapists often remain in stressful roles,
potentially due to compassion satisfaction (Carmel & Friedlander, 2009). Compassion satisfaction refers to the sense of pleasure or fulfillment therapists get from helping others through their work (Larsen & Stamm, 2008). Although compassion satisfaction has an inverse relationship with burnout and STS (Stamm, 2010), they can also be experienced at the same time (Bride & Figley, 2007), much like vicarious growth and distress (Tedeschi & Calhoun, 2004). Given that compassion satisfaction is also associated with increased empathy (Wagaman et al., 2015), which in turn has been suggested as an important factor associated with VPTG (Manning-Jones et al., 2015), it is plausible that compassion satisfaction may impact VPTG and positive changes which may be integrated with professional identity. Similarly, there is an association between key components of self-compassion and empathy (Thieleman & Cacciatore, 2014) and it is plausible that self-compassion may have a role in the development of both STS and VPTG. Self-compassion refers to having a self-caring and compassionate attitude when facing suffering (Neff, 2003). According to Neff (2003), self-compassion consists of self-kindness (as opposed to self-judgement), common humanity (versus isolation) and mindfulness (versus over-identification with negative thoughts or feelings). It has been suggested that self-compassion may facilitate the development of PTG, based on previous research suggesting self-compassion may be a protective factor for trauma adaptation (e.g. Dahm et al., 2015) as well as an important individual difference variable in coping with stress (Allen & Leary, 2010). Despite self-compassion exercises being established suggested self-care strategies for helping professions to buffer against adverse outcomes such as STS (Thielemen & Cacciatore, 2014, Nelson et al., 2017) there has been a lack of research on the construct in samples vicariously exposed to trauma.
Although the area of STS and VPTG is receiving more attention, inconsistencies remain with regard to understanding the relationship between STS and VPTG. There is also a dearth of knowledge as to potential statistical predictors of both phenomena, with the majority of research utilizing correlational or qualitative methodologies. In light of this, the present study aimed to investigate the following hypotheses:

(i) The relationship between STS and VPTG would be better explained by a linear than quadratic model in an international sample of psychological therapists.

(ii) Being younger, female, having a history of personal trauma, less professional experience, a higher percentage of work with a trauma focus, less satisfaction with clinical supervision, lower compassion satisfaction, lower self-compassion and higher burnout would significantly predict STS.

(iii) Being younger, female, having a history of personal trauma, less professional experience, a higher percentage of work with a trauma focus, more satisfaction with clinical supervision, higher compassion satisfaction, higher self-compassion and lower burnout would significantly predict VPTG.

Method

Participants

This study employed a cross-sectional, online survey design. Participants were considered to meet inclusion criteria if they: 1) were aged 18 or over and 2) worked (past or present) as a psychological therapist with individuals who had experienced trauma. Participants were recruited using purposive, convenience and snowball sampling methods, as detailed below. Sample size was estimated by an a-priori power calculation using G*Power software for a linear
regression; \( f^2 = .05 \) with 10 statistical predictors. A sample of 335 was indicated (power = .80) and 50% was added as attrition rates of up to 50-60% may be expected in web-based health research (Hochheimer et al., 2016), leading to a final sample aim of 506.

A total of 506 individuals accessed the online survey. Those who had not completed the survey (i.e. dropped out) were excluded from data analysis in line with their right to withdraw from the study. This resulted in a final sample of 359 participants. Demographics were compared between those who completed the survey and those who did not, and no significant differences were found.

Measures

A demographic questionnaire was developed for the study and captured information related to the following factors: age; gender; profession; years qualified; percentage of therapeutic work with a focus on trauma; satisfaction with clinical supervision and personal history of direct trauma exposure based on DSM-5 criteria (American Psychological Association; APA, 2013).

The Professional Quality of Life Scale (ProQOL; Stamm, 2010) is a 30-item scale commonly used to assess the positive and negative impacts helping professionals may experience because of their role. It has three subscales scored on a five-point Likert scale which assess compassion satisfaction, burnout, and secondary traumatic stress (STS). In the current study, the PROQOL had a Cronbach’s alpha value of 0.91 for CS, 0.81 for STS and 0.91 for burnout. The measure has well established validity in helping professional samples (Stamm, 2010).

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) is a 21-item scale which measures posttraumatic growth across five domains: appreciation of life, relating to
others; personal strength, new possibilities; and spiritual growth. To reflect VPTG, the PTGI was adapted to ask participants whether changes had occurred as a result of their clinical work with clients with a history of trauma. Participants were asked to rate the extent to which they felt changes had occurred within themselves because of their work on a five-point Likert scale. The Cronbach’s alpha internal reliability value of the measure used in this study was 0.94. The validity of the PTGI has been established in many quantitative studies as the most used instrument to assess PTG (Shakespeare-Finch et al., 2013).

The Self Compassion Scale (SCS; Neff, 2003) is a 26-item scale which measure beliefs and attitudes about self-compassion across the following domains: self-kindness, common humanity, mindfulness, self-judgement, isolation and over-identification. Participants responded to items related to each subscale using a 5-point scale. Cronbach’s alpha of the measure was 0.94 in this study and the measure has demonstrated satisfactory validity across a series of studies (Neff, 2003).

**Procedure**

An initial draft of the survey was uploaded to Qualtrics online survey platform (Qualtrics, 2021) and piloted with ten therapists in training and the research team. Following amendments, the final version was uploaded to Qualtrics and data collection began in March 2020. A brief description of the study and a direct link to the survey were shared on Twitter using a professional account set up specifically for the purpose of disseminating the research. The information and link were also shared on Facebook groups for psychological therapists and via email to relevant organizations and clinicians providing trauma-related services whose details were publicly available online. It was not possible to estimate the response rate of the study given the varied nature of the recruitment approach.
Data analysis

Curve estimation analysis and a hierarchical multiple regression was first conducted to assess whether the relationship between STSS and VPTG within the sample was best explained as linear or quadratic and whether linearity could be assumed. Hierarchical multiple regressions were subsequently conducted to explore potential statistical predictors of STS and VPTG respectively. In terms of categorical variables, gender was coded as male=1 and female =0 for analysis. A reference category was not made for other genders due to small sample size ($n=4$). Personal trauma history was coded as yes=1 and no=0 and supervision satisfaction was dummy coded as somewhat or extremely satisfied =1 and somewhat or extremely dissatisfied = 0. Assumptions of independence, linearity, multicollinearity, homoscedasticity, and adequate sample size were checked and met within the data for hierarchical regression analyses (see Appendix A). All analyses were conducted using IBM SPSS Statistics Version 26 and any missing data was dealt with by excluding missing cases pairwise.

Results

Descriptive statistics

Three hundred and fifty-nine participants from 24 countries completed the survey, with the United States (25.1%), England (24.8%) and Northern Ireland (18.7%) the most represented. The age range of the sample was 26 to 77, with a mean age of 42.50 ($SD = 10.48$). In terms of profession, the sample was largely made up of clinical psychologists (44.8%), followed by psychotherapists (18.9%) and counsellors (12%). Years qualified as a therapist ranged from 0-50, with a mean of 11.07 years’ experience ($SD= 9.36$). Further demographic information is displayed in Table 1.
Table 1

*Demographic characteristics of sample*

<table>
<thead>
<tr>
<th>Demographic characteristic</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Gender</strong></td>
<td></td>
</tr>
<tr>
<td>Female</td>
<td>85.2</td>
</tr>
<tr>
<td>Male</td>
<td>13.6</td>
</tr>
<tr>
<td>Non-binary</td>
<td>1.2</td>
</tr>
<tr>
<td><strong>Country</strong></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>3.3</td>
</tr>
<tr>
<td>Canada</td>
<td>3.3</td>
</tr>
<tr>
<td>England</td>
<td>24.8</td>
</tr>
<tr>
<td>New Zealand</td>
<td>1.1</td>
</tr>
<tr>
<td>Northern Ireland</td>
<td>18.7</td>
</tr>
<tr>
<td>Republic of Ireland</td>
<td>9.7</td>
</tr>
<tr>
<td>Scotland</td>
<td>6.4</td>
</tr>
<tr>
<td>United States</td>
<td>25.1</td>
</tr>
<tr>
<td>Wales</td>
<td>2.2</td>
</tr>
<tr>
<td>Other</td>
<td>5.3</td>
</tr>
<tr>
<td><strong>Profession</strong></td>
<td></td>
</tr>
<tr>
<td>Clinical Psychologist</td>
<td>44.8</td>
</tr>
<tr>
<td>Cognitive Behavioral Therapist</td>
<td>9.5</td>
</tr>
<tr>
<td>Counsellor</td>
<td>12.0</td>
</tr>
<tr>
<td>Counselling Psychologist</td>
<td>5.0</td>
</tr>
<tr>
<td>Psychotherapist</td>
<td>18.9</td>
</tr>
<tr>
<td>Other</td>
<td>9.7</td>
</tr>
<tr>
<td><strong>Personal trauma history</strong></td>
<td></td>
</tr>
<tr>
<td>Yes</td>
<td>58.8</td>
</tr>
<tr>
<td>No</td>
<td>41.2</td>
</tr>
<tr>
<td><strong>Mean percentage of work with a trauma focus</strong></td>
<td>63.07 (SD= 29.07)</td>
</tr>
</tbody>
</table>

Means and ranges for all major scales used are displayed in Table 2. Based on suggested categorizations by Stamm (2010) for low, moderate and high STS, compassion satisfaction and burnout, results indicated that 59.3% (n=213) of participants reported low levels of STS and 40.7% reported moderate levels (n=146). No participants scored within the high range for STS. In terms of compassion satisfaction (CS), no participants scored within the low range, 65.74% (n=236) scored within the moderate range and 34.26% (n=123) scored high for CS. Over half the
sample (54.6%; \(n=196\)) reported moderate levels of burnout (BO), while the remainder of the sample reported low levels (45.40%; \(n=163\)).

**Table 2**

*Means and ranges for study measures*

<table>
<thead>
<tr>
<th>Measure</th>
<th>Construct</th>
<th>(M)</th>
<th>(SD)</th>
<th>Range</th>
<th>Potential range</th>
</tr>
</thead>
<tbody>
<tr>
<td>PROQOL</td>
<td>STS</td>
<td>21.50</td>
<td>5.19</td>
<td>10-37</td>
<td>0-50</td>
</tr>
<tr>
<td>PROQOL</td>
<td>Compass satisfaction</td>
<td>38.91</td>
<td>5.87</td>
<td>24-50</td>
<td>0-50</td>
</tr>
<tr>
<td>PROQOL</td>
<td>Burnout</td>
<td>23.40</td>
<td>5.60</td>
<td>11-38</td>
<td>0-50</td>
</tr>
<tr>
<td>PTGI</td>
<td>VPTG</td>
<td>32.10</td>
<td>18</td>
<td>0-81</td>
<td>0-84</td>
</tr>
<tr>
<td>SCS</td>
<td>Self-compassion</td>
<td>3.38</td>
<td>0.72</td>
<td>1.42-4.92</td>
<td>1.00-5.00</td>
</tr>
</tbody>
</table>

*Note:* PROQOL = Professional quality of life scale; PTGI = Posttraumatic growth inventory; SCS = Self-compassion scale.

**Relationship between STS and VPTG**

Curve estimation analysis was carried out to assess whether the relationship between STS and VPTG within the sample was better explained as linear or quadratic. Both linear (\(F(1,357) = 10.80, p = .001\)) and quadratic (\(F(2,356) = 6.13, p = .002\)) associations were significant and so a hierarchical regression was conducted with STS linearly entered in step 1 and \(STS^2\) (the quadratic component) entered in step 2 for further assessment of the relationships. Both variables were centered due to multicollinearity. Results indicated that while considered linearly, STS explained a small but significant amount of variance in VPTG; \(R^2 = 2.9\%\), \(F (1,357) = 10.8, p < .001\). When the quadratic component of STS was added to the model, it did not explain any additional variance (0.4\% of the variance in VPTG; \(F\text{-change} (1,356) = 1.45, p = .229\)). Thus, the relationship between STS and VPTG was considered to be better explained as linear within
this sample ($r = .171$) and STS was considered a linear statistical predictor in subsequent regression analyses.

**Statistical predictors of STS**

A three-step hierarchical multiple regression was used to examine the impacts of potential statistical predictors on the outcome variable, STS. The effects of demographic variables (age gender, personal trauma history) were entered at step one. All three variables significantly contributed to the model and explained 7.2% of variance in STS; $F\text{-change} (3,310) = 7.97, p < .001$. At step two, professional factors were entered (years qualified, % of work with a trauma focus and satisfaction with supervision) and explained a further 2.8% of variance in STS with percentage of work with a trauma focus being an additional significant statistical predictor; $F\text{-change} (6,307) = 3.19, p < .05$. In step three, self-compassion, compassion satisfaction and burnout were added and these variables explained a further 30.8% of variance observed. This final model as a whole explained 40.8% of the variance in STS; $F (9,304) = 23.2$, $p < .001$. In order of contribution, the significant statistical predictors in the model were: Burnout, self-compassion, personal trauma history, percentage of work with a trauma focus and gender. Results of unstandardized regression weights (Bs), co-efficient standard errors (SE B), standardized regression weights ($\beta$s) and $R^2$ change ($\Delta R^2$) by step and statistical predictor variable are presented in Table 3.

**Table 3**

*Summary of hierarchical regression for variables predicting STS*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>$\beta$</th>
<th>$\Delta R^2$</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td>.072***</td>
</tr>
<tr>
<td>Age</td>
<td>-.076</td>
<td>0.03</td>
<td>-.15**</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>-2.13</td>
<td>0.83</td>
<td>-.14*</td>
<td></td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>1.86</td>
<td>0.58</td>
<td>.17**</td>
<td></td>
</tr>
</tbody>
</table>
### Statistical predictors of VPTG

A four-step hierarchical multiple regression was used to examine the impacts of potential statistical predictors on VPTG. The effects of demographic variables (age, gender, personal trauma history) were entered at step one. Gender and personal trauma history significantly contributed to the model and 6.4% of variance in VPTG was explained; \( F\text{-change (3,310)} = 7.01, p < .001 \). At step two, work-related factors were entered (years qualified, % of work with a trauma focus and satisfaction with supervision) and explained a further 10.5% of variance in VPTG with years qualified and percentage of work with a trauma focus being additional significant statistical predictors; \( F\text{-change (3,307)} = 12.96, p < .001 \). In step three, self-compassion, compassion satisfaction and burnout were added, and these variables explained a further 7.6% of variance observed; \( F\text{-change (3,304)} = 10.16, p < .001 \). Finally, STS was added
in step four and explained 2.8% of variance observed in VPTG. The final model explained 27.3% of the variance in VPTG; \( F(10,304) = 11.37, p < .001 \). In order of contribution, the significant statistical predictors in the model were: Compassion satisfaction, self-compassion, STS, percentage of work with a trauma focus, years qualified, gender and personal trauma history. Results of unstandardized regression weights (Bs), co-efficient standard errors (SE B), standardized regression weights (\( \beta \)) and \( R^2 \) change (\( \Delta R^2 \)) by step and statistical predictor variable are presented in Table 4.

**Table 4**

*Summary of hierarchical regression for variables predicting VPTG*

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>( \beta )</th>
<th>( \Delta R^2 )</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td></td>
<td></td>
<td></td>
<td>.064***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.18</td>
<td>0.09</td>
<td>-.11</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>6.54</td>
<td>2.88</td>
<td>.13*</td>
<td></td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>7.87</td>
<td>2.01</td>
<td>.22***</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td></td>
<td></td>
<td></td>
<td>.105***</td>
</tr>
<tr>
<td>Age</td>
<td>0.03</td>
<td>0.14</td>
<td>.02</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>6.29</td>
<td>2.73</td>
<td>.12*</td>
<td></td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>6.22</td>
<td>1.92</td>
<td>.17**</td>
<td></td>
</tr>
<tr>
<td>Years qualified</td>
<td>-0.32</td>
<td>0.16</td>
<td>-.17*</td>
<td></td>
</tr>
<tr>
<td>% of work with a trauma focus</td>
<td>0.18</td>
<td>0.03</td>
<td>.30***</td>
<td></td>
</tr>
<tr>
<td>Supervision satisfaction</td>
<td>-2.44</td>
<td>2.83</td>
<td>-.05</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td></td>
<td></td>
<td></td>
<td>.076***</td>
</tr>
<tr>
<td>Age</td>
<td>-0.02</td>
<td>0.14</td>
<td>-.01</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>5.87</td>
<td>2.63</td>
<td>.11*</td>
<td></td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>5.15</td>
<td>1.90</td>
<td>.14**</td>
<td></td>
</tr>
<tr>
<td>Years qualified</td>
<td>-0.38</td>
<td>0.15</td>
<td>-.20*</td>
<td></td>
</tr>
<tr>
<td>% of work with a trauma focus</td>
<td>0.15</td>
<td>0.03</td>
<td>.24***</td>
<td></td>
</tr>
<tr>
<td>Satisfaction with supervision</td>
<td>-1.17</td>
<td>2.75</td>
<td>-.02</td>
<td></td>
</tr>
<tr>
<td>Self-compass</td>
<td>4.53</td>
<td>1.51</td>
<td>.19**</td>
<td></td>
</tr>
<tr>
<td>Compassion satisfaction</td>
<td>0.86</td>
<td>0.24</td>
<td>.28***</td>
<td></td>
</tr>
<tr>
<td>Burnout</td>
<td>0.58</td>
<td>0.25</td>
<td>.19*</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong></td>
<td></td>
<td></td>
<td></td>
<td>.028***</td>
</tr>
<tr>
<td>Age</td>
<td>0.01</td>
<td>0.13</td>
<td>.00</td>
<td></td>
</tr>
<tr>
<td>Gender</td>
<td>7.03</td>
<td>2.61</td>
<td>.14**</td>
<td></td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>4.09</td>
<td>1.89</td>
<td>.11*</td>
<td></td>
</tr>
</tbody>
</table>
The present study aimed to establish whether the relationship between secondary traumatic stress and vicarious posttraumatic growth is best explained as linear or curvilinear in a sample of psychological therapists who work with trauma. It also aimed to establish the contribution of demographic, professional and personal factors in predicting both constructs. Regarding the relationship between STS and VPTG, results indicated that it was best explained by a linear model within the sample. In terms of STS, the most salient statistical predictors within the sample were burnout, lower levels of self-compassion, having a personal trauma history, higher percentage of work with a trauma focus and being female. For VPTG, higher compassion satisfaction, higher self-compassion, higher STS, higher percentage of work with a trauma focus, less years qualified, being male and having a personal trauma history were the significant statistical predictors. These findings suggest that vicarious exposure to trauma appears to have a dose effect on both STS and VPTG, which has important implications for clinicians with high trauma caseloads. Findings also suggest that self-compassion may be both a notable protective factor from STS as well as a factor which increases likelihood of experiencing VPTG, highlighting it as a skill worth developing in the clinical workforce.
Regarding the relationship between STS and VPTG, results indicated that it was best explained by a linear model within the sample. Albeit a weak relationship, this nonetheless lends support to the theory that growth and distress may co-exist or increase concurrently (Tedeschi & Calhoun, 2004) and that while those who experience secondary trauma have the potential to experience growth, it should not be assumed that this means they are no longer experiencing adverse effects of vicarious trauma.

In terms of the contribution of demographics factors in explaining variance in STS and VPTG, male participants reported lower levels of STS which supports previous studies of both direct and vicarious samples that found females are more likely to report PTSD and STS symptoms respectively (Irish et al., 2011; Linley & Joseph, 2007). However, the finding suggesting that males are more likely to experience VPTG is new and contradicts previous studies indicating that females are more likely to experience growth or that there are no gender differences in terms of VPTG (Linley & Joseph, 2017; Manning-Jones et al., 2017). Having a personal trauma history was also a significant statistical predictor of both STS and VPTG. This may be understood in light of the disruptive impact trauma can have on cognitive schemas about oneself, others and the world (Galloucis et al., 2000), which trauma therapists may find re-activated or reinforced by vicarious exposure to further traumatic material via their clients. If this is the case, there is a concern as to whether it is indeed VPTG being reported or whether individuals are experiencing PTG related to their own experiences. No impacts of age were found in relation to either STS or VPTG. These results may have been confounded by turnover of younger or less experienced therapists being impacted by VT exposure and changing profession as a result (Pearlman & McIan, 1995).
Percentage of work with a trauma focus was the only professional variable that predicted both STS and VPTG. This is consistent with previous findings that higher cumulative levels of exposure to vicarious trauma predict both STS and growth (e.g. Craig & Sprang, 2010; Brockhouse et al., 2011) and may suggest that dose of exposure is not only applicable to negative sequelae of vicarious trauma exposure, but potentially to positive sequelae too. This may also reflect aspects of VPTG related to professional identity reported in previous studies such as individuals realizing the value of their work, feeling they have made a difference and feeling more competent in their skills (Manning-Jones et al., 2015), all of which one would expect to increase with more trauma case experience. It is important to note however that the measure of percentage of trauma cases per caseload in this study did not consider overall caseload numbers or hours per week with clients due to variability as to how these were reported within the sample, thus limiting comparability. While years qualified as a therapist had no impact on STS, having less professional experienced significantly predicted VPTG, contrary to previous findings (Kjellenberg et al., 2014). If less experienced therapists who have been negatively impacted by therapy work are more likely to have left the profession as suggested by Pearlman & McIan (1995), this finding might be related to a commitment to being a therapist by those who remain whereby values and aspirations of newer therapists may lead to them processing their experiences in a more positive way, enabling growth (Ben-Porat, 2020). Satisfaction with clinical supervision did not explain any variance in either STS of VPTG. This is in contrast with previous studies of both student and qualified therapist samples which have found that satisfaction with supervision has explained variance in growth (Ben-Porat, 2020), however the current sample may be more heterogenous in terms of expectations and experiences of supervision given the diverse backgrounds, work settings and countries of practice included.
The emergence of burnout as the most significant statistical predictor of STS lends support to the idea that exhaustion and depleted resources associated with burnout may leave individuals vulnerable to further negative impacts of their work context, such as STS. This is of relevance considering 54.6% of sampled clinicians reported moderate levels of burnout, a figure which is in line with national norms reported by Stamm (2009), but higher than other samples of trauma therapists (e.g. Sodeke-Gregson et al., 2013). On the other hand, compassion satisfaction, the inverse of burnout, was the more substantive statistical predictor of VPTG. As higher compassion satisfaction reflects more positive feelings arising from helping others, a buildup of such positive emotions may allow compassion satisfaction to become a personal resource for therapists to use to buffer against the impacts of STS by allowing the broadening of a person’s mindset and positive meaning making (Samois et al., 2013). The most noteworthy results may be those of the impact of self-compassion on both STS and VPTG, with higher self-compassion predicting lower levels of the former and higher levels of the latter. The role of self-compassion in predicting VPTG, similar to compassion satisfaction, may also be related to the process of meaning-making as higher self-compassion has been associated with more positive cognitive reframing (Phillips & Ferguson, 2012) as well as with more positive thinking about one’s experience (Allen & Leary, 2014). A recent study of self-compassion and direct PTG found that reported positive self-compassion may be associated with more adaptive cognitive processes, which in turn is associated with higher levels of PTG (Wong & Yeung, 2017) and the results of the current study point to a potentially similar process in VPTG. In terms of the role of heightened self-compassion in predicting lower STS, this may be explained by self-compassion being associated with a willingness to engage with painful thoughts and emotions, which represents an adaptive coping style that protects against secondary traumatization relative to less
helpful strategies (e.g., avoidance; Ehlers & Clark, 2000; Leary et al., 2007). Unsurprisingly, STS as a linear variable was a significant statistical predictor of VPTG. This is consistent with theories of PTG suggesting there must be a certain amount of distress for growth to occur (Tedeschi & Calhoun, 2004) and that VPTG may occur, like direct PTG, through the struggle to make sense of this distress and to re-build assumptions and schemas which may have been shattered by vicarious trauma exposure (Tedeschi & Calhoun, 2004).

The study illustrates that the development of STS and VPTG cannot be explained by demographic, professional or intrapsychic variables alone, but by a combination of factors. This has important implications for therapists and the organizations in which they train and work. Although it is promising that positive impacts may arise from STS, namely VPTG, and there are factors which may help enhance its’ development (i.e., compassion for self and others), it is more desirable in the first instance to work towards preventing STS. It is important to recognize that STS occurs within an organizational context and thus its prevention and treatment should too. Although self-care is often discussed and encouraged amongst therapists, Nelson et al. (2018) report that few training programs actively teach prospective therapist’s self-care strategies, but rather pass off the idea of self-care as a recommendation for one to incorporate into their own life themselves. A lack of specific guidance and a lack of role modeling by faculty members and supervisors of self-care strategies as essential as opposed to optional may be a barrier to self-care for trainees in the field (Nelson et al., 2018). This echoes research on the importance of work-life balance behaviors such as taking breaks, leaving work on time and prioritizing personal plans over work being promoted at an organizational level in contexts where qualified therapists work (Schwartz et al., 2019) as individuals may be more likely to practice such behaviors if they are normative within the workplace and this “culture” is engaged with by supervisors and co-
workers (Kossek et al., 2011). The results of the current study support previous research (e.g. Pearlman & McIan, 1995) highlighting the prevalence of therapists with personal trauma exposure. These findings reinforce the need for training institutions and healthcare organizations to introduce specific self-care guidance and promote a culture of work-life balance, given there may be increased vulnerability within this population. Results suggest there may also be increased vulnerability in therapists working exclusively with trauma, and those therapists may also particularly benefit from such initiatives to lower their risk of developing STS. Given the potential role of self-compassion in decreasing likelihood of STS and increasing likelihood of VPTG in those who have experienced STS, strategies based on self-compassion and mindfulness are obvious options for organizations to incorporate. Indeed, studies have demonstrated the value of teaching mindfulness-based stress reduction and mindfulness training to trainee therapists in terms of stress levels and empathy as well as mindfulness levels (which is a key part of self-compassion) (Shapiro et al., 2007, Hopkins & Proeve, 2012). Increasing opportunities for therapists to engage in research and development activities as part of their role may also help buffer against STS and increase likelihood of VPTG in those who have been vicariously traumatized as more time spent on such activities has been found to predict higher compassion satisfaction (Sodeke-Gregson et al., 2013) and less avoidance (Chrestman & Stamm, 1999).

Despite the novelty of this study, it is not without its limitations. Firstly, given the cross-sectional nature of the design of the study, results should be interpreted with caution in relation to the relationship between the statistical predictors presented here and STS and VPTG. Longitudinal research is required to truly explore the impact of variables such as burnout, self-compassion, and compassion satisfaction on STS and VPTG and vice versa. A further limitation is the use of an adapted version of the PTGI to measure VPTG. As this was designed to measure
direct PTG it may not fully capture all aspects of VPTG, particularly those relevant to professional identity as discussed above (Manning-Jones, de Terte & Stephens, 2015) and may also risk blurring the line between changes, and indeed trauma symptoms, attributable to direct and vicarious exposure in those with direct trauma experience. Future research would benefit from the development of a specific psychometric measure of VPTG in professional contexts. Future studies should also consider using a prospective intervention design where self-compassion is increased in psychological therapists to assess whether this mitigates future STS and enhance VPTG.

To conclude, the present study has demonstrated the important contribution of demographic, professional and intrapsychic statistical predictors to both STS and VPTG in therapists. Findings highlight the importance of preventative initiatives being implemented on both an individual and systemic level to buffer against STS, particularly in female therapists with a history of personal trauma and those who exclusively work with clients with traumatic presentations. The novel findings in relation to self-compassion in particular may inform such initiatives in training and work contexts and should be the focus of future research in this area.
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Appendix A

Assumptions of Regression Analyses

Tests were conducted to see if the data met the assumption of collinearity for regression analyses relating to both STS and VPTG as outcome variables and results indicated that multicollinearity was not a concern, as detailed below in Tables 1 and 2. The data also met the assumption of independent errors for both regression models (Durbin-Watson values = 1.87 and 2.107 respectively) and assumptions of normality and homoscedasticity as illustrated by scatterplots below in Figures 1 and 2.

Table 1

*Multicollinearity figures for predictors of STS*

<table>
<thead>
<tr>
<th>Predictor</th>
<th>Tolerance</th>
<th>VIF</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>.388</td>
<td>2.579</td>
</tr>
<tr>
<td>Gender</td>
<td>.973</td>
<td>1.028</td>
</tr>
<tr>
<td>Personal trauma history</td>
<td>.897</td>
<td>1.115</td>
</tr>
<tr>
<td>Years qualified</td>
<td>.408</td>
<td>2.449</td>
</tr>
<tr>
<td>% of work with a trauma focus</td>
<td>.909</td>
<td>1.100</td>
</tr>
<tr>
<td>Satisfaction with supervision</td>
<td>.946</td>
<td>1.057</td>
</tr>
<tr>
<td>Self-compassion</td>
<td>.645</td>
<td>1.550</td>
</tr>
<tr>
<td>Compassion satisfaction</td>
<td>.408</td>
<td>2.453</td>
</tr>
<tr>
<td>Burnout</td>
<td>.383</td>
<td>2.610</td>
</tr>
</tbody>
</table>

Table 2

*Multicollinearity figures for predictors of VPTG*
### Predictor | Tolerance | VIF
---|---|---
Age | .387 | 2.586
Gender | .956 | 1.046
Personal trauma history | .873 | 1.145
Years qualified | .407 | 2.457
% of work with a trauma focus | .891 | 1.122
Satisfaction with supervision | .945 | 1.058
Self-compassion | .627 | 1.595
Compassion satisfaction | .403 | 2.483
Burnout | .317 | 3.159
STS | .592 | 1.688

*Figure 1. Normality plots for regression analyses*
Figure 2. Scatterplots indicating homoscedasticity for regression analyses
Ethical Approval for Large Scale Research Project

Date: 15 January 2020
To: Dr David Curran
Faculty REC Reference Number: EPS 19_303
Full Title: Understanding the Pathway to Vicarious Posttraumatic Growth in Therapists
Decision: APPROVED

Thank you for your application which was reviewed by the EPS Faculty Research Ethics Committee (Faculty REC) in accordance with the Proportionate Review process.

It was noted that it was a thorough submission. The application and supporting documents have been approved.

Conditions of the Approval

The Faculty REC approval is subject to the following conditions:

(i) The study must be conducted in accordance with all relevant legislation. All relevant management approvals from organisations involved in the research must be obtained.
(ii) When the research involves human volunteers the study must be entered on the University’s Insurance Database.
(iii) Monitoring and auditing process must be complied with including submission of annual progress reports to the Faculty REC.

It is the Chief Investigator’s responsibility to ensure the study is conducted in accordance with the conditions stipulated.

Any future changes to any part of the submitted application, protocol or supporting documentation must be notified to the Committee prior to these changes taking place.

Approved Documents

The documents approved by the Faculty REC are listed in the table below.

<table>
<thead>
<tr>
<th>Documentation Received</th>
<th>Version</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Application Form</td>
<td></td>
<td>Received 16 December 2019</td>
</tr>
<tr>
<td>Research Proposal (Appendices A-D)</td>
<td>1</td>
<td>Received 16 December 2019</td>
</tr>
<tr>
<td>Peer Review</td>
<td></td>
<td>Received 16 December 2019</td>
</tr>
</tbody>
</table>

If you would like to discuss this further please contact the Research Ethics Officer, Mr Stefan Curran, at facultysrecs@qub.ac.uk or by telephone on 02890972529.

Yours sincerely

[Signature]

pp Professor Brendan Murtagh
Chair, EPS Faculty REC
Section 3: Author Guidelines for Traumatology

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- Select MathType or Equation Editor 3.0 in the drop-down menu.

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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.

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Section 4: Reflective Appendix

Undertaking this research portfolio has not only offered me an opportunity to progress my research and critical thinking skills, but also an opportunity to evolve my problem-solving, team-working, and reflective practice skills. Below are my reflections on the challenges that have presented throughout the process, the development of the above skills, and implications for future practice.

The parts of the research process which I found most challenging in relation to the large-scale research project came at the beginning and at the end. Initially, I found it difficult to prioritize what to include in the online survey and to decide how to ask the “right” questions the “right” way to address my research aims. Following data collection, I felt overwhelmed at times at the prospect of managing and analyzing a large data set for the first time and using statistical methods which I did not feel familiar or competent with. Although difficult at the time, these experiences provided invaluable opportunities for me to acquire new skills in terms of research design, online recruitment, data analysis and time management which will serve me well in future research endeavors. In hindsight, and as my knowledge in this research area has increased, there are some changes I would make to the survey design in terms of how certain questions were asked and what measures were included, to enhance clarity for both the participant and for the researcher analyzing the data.

Surprisingly, conducting the systematic literature review aspect of the research portfolio presented less challenge than initially anticipated. I had felt very daunted in advance of starting the review due to my lack of experience and familiarity with the methodology I had chosen, meta-analysis. However, once a clear review question was established, I enjoyed the opportunity to read and review so many papers about an area which is of great interest to me. I also enjoyed
the opportunity to contribute to the literature on the relationship between secondary traumatic stress and vicarious posttraumatic growth by identifying strengths, weaknesses and knowledge gaps of the papers included. I developed skills in the areas of quality assessment, systematic literature searching and critical thinking throughout the review process which will enrich both my research and clinical practice going forward.

I was drawn to this project as I feel strongly about the importance of staff wellbeing and about acknowledging both the unique challenges and the unique benefits of working as a clinical psychologist. The most enjoyable part of the process by far was the opportunity to discuss the project and engage in conversations about the topics of vicarious trauma, work-life balance and vicarious posttraumatic growth with peers, supervisors, and therapists both near and far. I was humbled by the interest and participation in the project and am extremely grateful to every therapist that took the time out of their busy schedule to participate.

While undertaking this project has given me the opportunity to develop many practical research skills, as discussed above, it has also given me the opportunity to reflect on the relationship between difficult experiences and growth, particularly in the context of the work of a psychologist. Throughout this project, and indeed throughout my clinical training, it has never ceased to amaze me how much time, space, empathy and compassion my peers, colleagues and supervisors hold for the distress of others on a daily basis. However, I have also observed how as psychological therapists we often find ourselves part of systems and institutions where the same time and space or compassion and empathy towards ourselves can feel like a luxury rather than a priority. The findings of this research have helped me reflect on how I hope to contribute to organizational change in this regard going forward in my clinical practice as a psychologist, team member and future supervisor.
Completing this research, while balancing clinical placements, personal commitments, and the added pressures of a global pandemic at times felt all-consuming and near impossible. However, despite the challenges, I have learned valuable skills and made contributions to an area of research very relevant to the practice of clinical psychology. I look forward to developing these skills further and engaging in further research on this topic post-qualification. I would like to thank my research team David Curran, Donncha Hanna, Kevin Dyer, Jane Simms and Grace Kelly for their expertise, support, and guidance throughout the research process and beyond. I would also like to thank Martin Dorahy for his valuable expertise and contributions to this research.