Vicarious Post-Traumatic Growth; A Psychological Sequelae of Working in Oncological Services

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Thesis submitted in partial fulfilment of the requirement for the degree of Doctorate of Clinical Psychology at Cardiff University and South Wales Doctoral Programme of Clinical Psychology

DECLARATION

This work has not been submitted in substance for any other degree or award at this or any other university or place of learning, nor is being submitted concurrently in candidature for any degree or other award.

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This thesis is being submitted in partial fulfilment of the requirements for the degree of Doctorate in Clinical Psychology (DClinPsych)

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Ivy, my wonderful daughter, who reminds every day to appreciate life – you are my sunshine even when skies are grey.

THESIS SUMMARY

This thesis focusses on the topic vicarious post-traumatic growth (VPTG). The thesis has been written in the format of four papers: a systematic review, two empirical papers and a critical reflection paper.

Paper one presents a systematic review of quantitative studies exploring VPTG in health professionals. Eighteen studies were identified that fulfilled the reviews inclusion criteria. A narrative synthesis was completed. Results indicated an array of variables have been explored in relation to VPTG. The reviews clinical implications, recommendations of future research and limitations of the review are considered.

The first empirical paper (2a) presents a Q-Methodology study aimed to explore the views of VPTG in staff members working within a specialist cancer centre. A two-factor solution evolved from the Q-sort analysis, factor 1 - '*enriching and exposing to the transience of life.',* factor 2 - *'connection neighbouring disconnection'*. Recommendations for future research, as well as, clinical implications are discussed.

The second empirical paper (2b) presents a quantitative study of VPTG in staff members working within a specialist cancer centre. 40 staff members completed an adapted version of the Post-Traumatic Growth Inventory (PTGI) and professionals' quality of life (ProQOL) scale. Results indicated an array of relationships between VPTG, ProQOL and staff members demographics. Clinical implications and recommendations for future research are considered.

Paper three presents a critical reflection on the process of completing this thesis. Unlike the other papers, this paper is not intended for publication. Personal and professional development reflections are offered. A dissemination of research results is also shared.

TABLE OF CONTENTS

FIGURES

TABLES

APPENDICES 137

Paper	Word Count
Paper One: Systematic Review	5156
Paper Two (a): Empirical Paper	3782
Paper Two (b): Empirical Paper	3890
Paper Three: Critical Reflections	8899
Total Word Count:	21727

Paper One: Systematic Review

Vicarious Post-Traumatic Growth in Health Professionals: A Systematic Review

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Paper One has been prepared for submission to The British Journal of Health Psychology (see Appendix 1 for author guidelines).

Word Count = 5156
(excluding tables, figures and references)

Abstract

Purpose.
This systematic review synthesises quantitative research relating to the experience of vicarious post-traumatic growth (VPTG) in health professionals.

Methods.
Using PRISMA a comprehensive search of peer-reviewed articles yielded 1,632 citations. After screening and consideration of inclusion/exclusion criteria 18 articles, were included. Studies level of quality was assessed using the Quality Assessment Tool Study Diverse Design. The articles relevant data was also extracted.

Results.
The 18 articles' quality ranged from 41% (poor) to 67% (moderate). The studies explored a range of variables and their relationship with VPTG, the main being health professional's personal factors (e.g. personal trauma experiences) and organisational factors (e.g. supervision provision). The results indicated that demographics overall have little significance over VPTG. Several significant correlations between VPTG and both personal and organisational factors were noted.

Conclusions.
Research in VPTG is still in its infancy, with overlapping theoretical models from the post-traumatic growth (PTG) literature. More research of higher quality in this area needs to be conducted to develop sound foundations for the future.

Statement of contribution

What is already known on this subject?

- PTG is a phenomenon that is experienced by a range of people who have experienced a variety of adversities.
- The PTG literature, like the literature of post-traumatic stress disorder (PTSD) has begun to move into vicarious experiences of PTG (VPTG), within partners, carers, siblings and professionals.
- Systematic reviews of VPTG in professionals suggest a range of factors affect VPTG.

What does this study add?

- This is the first systematic review of VPTG in health professionals which has also formally assessed the quality of the research.
- This is also the first systematic review to purely include traditional health professionals, therefore systems akin to social services, third sector and educational services were not included in this study.

Conflict of Interest - None

Background

Health professionals are frequently exposed to a range of occupational traumas, from listening to the stories of abuse survivors, to supporting families after the sudden death of a loved one. It's becoming increasingly recognised that there is a 'cost to caring' (Figley, 1995), with a considerable amount of research exploring secondary traumatic stress (STS), vicarious traumatisation (VT) and vicarious post-traumatic stress disorder (McCann & Pearlman, 1990; Sabin-Farrell & Turpin, 2003). However, it is less widely recognised that many professionals sustain a high level of functioning while continuing to fulfil these challenging roles (Cohen & Collens, 2013). This might be due to financial or altruistic motives; however, it may also reflect the protective nature of vicarious post-traumatic growth (VPTG; Brooks, Lowe, Graham-Kevan, & Robinson, 2016; Samios, Rodzik, & Abel, 2012).

The term VPTG was first coined in the seminal paper by Arnold, Calhoun, Tedeschi and Cann (2005), in which 21 psychotherapists were interviewed. The results indicated that the psychotherapists experienced VT, although 76% also reported positive effects. Since then, terms such as benefit finding, stress-related growth, vicarious resilience, secondary growth, adversarial growth and compassion satisfaction have been used interchangeably with VPTG (Hyatt-Burkhart, 2014). This proliferation of terms is confusing, and possibly indicative of the underdeveloped literature on VPTG. Currently, there are no specific explanatory models of VPTG (Brockhouse, Msetfi, Cohen, & Joseph, 2011); rather, the models and theories pertaining to direct post-traumatic growth (PTG) act as a framework for understanding VPTG (Bartoskova, 2015). Arnold *et al*. (2005), however, emphasised that there may be subtle differences between direct and vicarious PTG. Manning-Jones, de Terte and Stephens (2015)

similarly noted differences, attributing them to professional identity and to VPTG being less integrated than PTG within a person's self-concept.

Models of PTG conceptualise it as an outcome, a coping strategy or an illusion (Joseph & Linley, 2005; Tedeschi & Calhoun, 2004; Zoellner & Maercker, 2006). The most dominant model of PTG, which is also used as a framework for VPTG, is the transformational model (Tedeschi & Calhoun, 2004). The transformational model suggests that traumatic events are personal earthquakes that shatter an individual's schemas. The ability to adjust to a new worldview and to derive meaning from the trauma are crucial to growth, with rumination and social support being key factors (Martin & Tesser, 1996).

Traditionally rumination has been linked with PTSD and increased psychological distress. Studies exploring post-trauma outcomes have highlighted the importance of distinguishing between different types and timings of rumination. Tedseschi and Calhoun (2004) state that rumination can be either automatic or deliberate and can happen any time after a traumatic event. They propose that soon after a traumatic event rumination is automatic but later becomes deliberate, once psychological distress has eased. Ongoing rumination such as brooding signifies that an individual continues to experience psychological distress. Whereas deliberate rumination has been linked with PTG (Taku et al 2009). Consequently, there remains some uncertainty as to whether the process or outcome of rumination facilitates the development of PTG, which is key for the conceptualisation of PTG (Zoellner & Maercker, 2004).

Quantitative research conceptualises PTG in five areas: personal strength, relating to others, new possibilities, spiritual change and appreciation of life (Tedeschi & Calhoun, 2004). Applying the models and frameworks borrowed from PTG, VPTG has been observed in these five areas in a range of professionals including social workers (Ben-Porat & Itzhaky, 2015; Gibbons, Murphy, & Joseph, 2011), oncology nurses (Vishnevsky, Quinlan, Kilmer, Cann, & Danhauer, 2015) and child protection workers (Rhee, Ko, & Han, 2013).

There is an abundance of literature pertaining to the negative effects of clinical work, emphasising burnout (Killian, 2008) and VT (Hernández-Wolfe, Killian, Engstrom, & Gangsei, 2015), with a paucity highlighting the positive consequences. VPTG is an important concept in the creation of a new narrative where professionals can hold both growth and pain. This theme is reported in three VPTG systematic reviews with recommendations of VPTG being discussed at training, debriefs and during supervision (Bartoskova, 2015; Cohen & Collens, 2013; Manning-Jones *et al*., 2015). In these reviews, a large variety of professions were analysed. Cohen and Collens (2013) qualitative review noted that the nature of trauma work potentially has an effect on VPTG; therefore, those working in different settings may experience VPTG differently. Bartoskova (2015) concentrated on VPTG in therapists, finding only four papers. This review offered no clarity in their search process and neglected to assess the quality of the studies using a standardised tool. Manning-Jones *et al*. (2015) offer a more comprehensive review of the VPTG literature including a clear search strategy. However, again, no standardised quality assessment tool was used. This review aims to provide an overview of VPTG in healthcare professionals and to critique the available literature as well as exploring the factors relating to VPTG as assessed by quantitative measures.

Methods

Search strategy

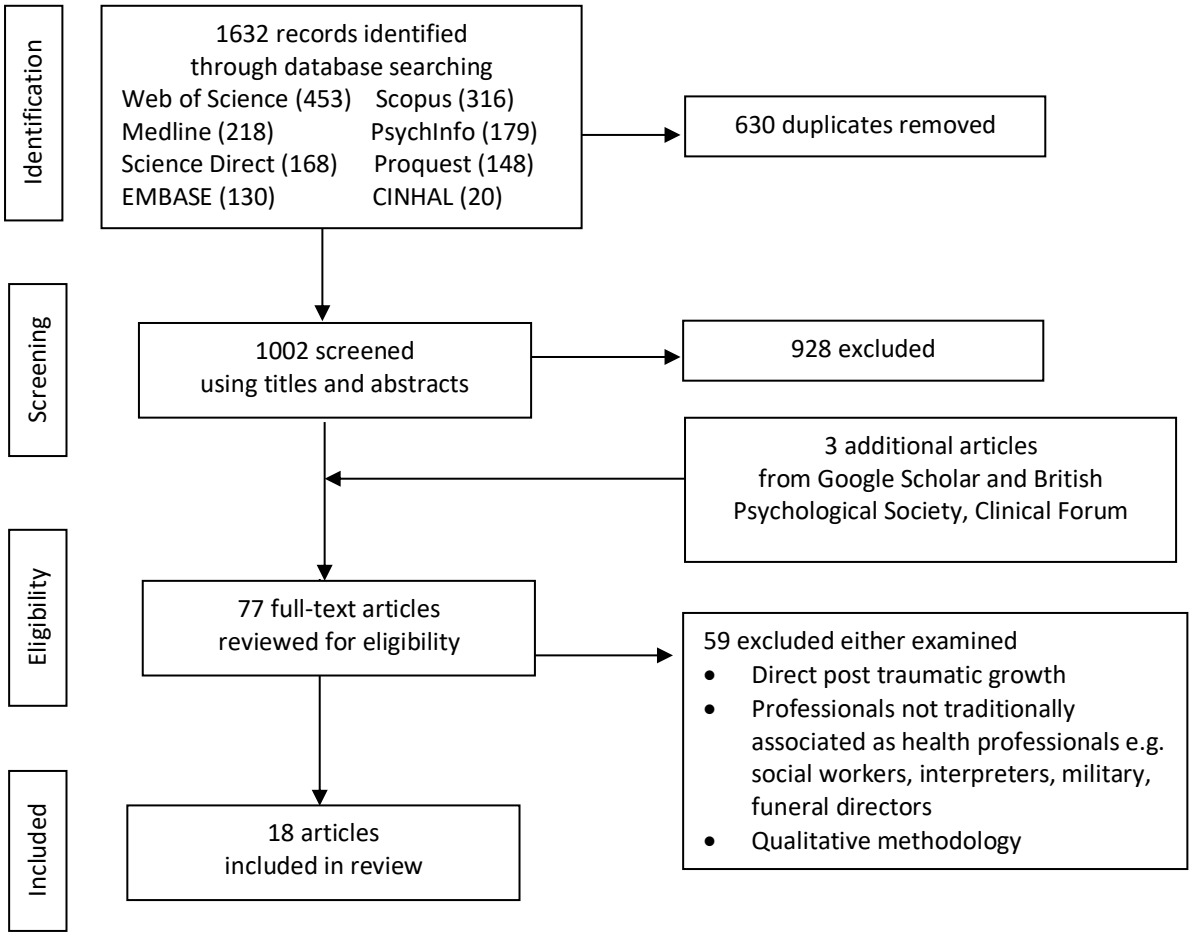
In accordance with the recommendations of the Centre for Reviews and Dissemination (Tacconelli, 2010) the Population, Interest, Context and Study Design (PiCoS) framework was adopted in order to develop the research question and search terms. See Table 1 for the full list of search terms.

Figure 1 represents the search strategy used based on the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) guidelines (Moher *et al*., 2009). The search was repeated monthly between November 2017 and April 2018, employing the electronic databases Cinahl, Embase, MEDLINE, Proquest, PsycInfo, ScienceDirect, Scopus and Web of Science. Further exploration of included papers, citations and a Google Scholar search revealed three additional papers.

Table 1. Search terms

Theme	Search terms	
Vicarious	vicarious.mp. secondary.mp.	indirect.mp. by proxy.mp.
Post Traumatic Growth	Posttraumatic growth.mp. post traumatic growth.mp. post-traumatic growth.mp. PTG.mp. positive growth.mp. positive consequence.mp. positive transformation.mp. psychological growth.mp. positive psychological change.mp. personal growth.mp. spiritual growth.mp. religious growth.mp.	benefit finding.mp. perception* of change.mp. wisdom.mp. or WISDOM/ positive change.mp. salutogenic.mp. new possibilities.mp. appreciation.mp. self-improvement.mp. flourish*.mp. thriv*.mp. personal strength.mp. relating to others.mp.
Health professional	Health care provider.mp. Health person*.mp. health care professional.mp. Health Personnel.mp. health worker.mp. nurs*.mp.	worker.mp. specialist.mp. care giver.mp. health practitioner.mp. medic.mp. or Allied Health Personnel/ therapist.mp.

Figure 1. Preferred Reporting Items for System Reviews and Meta-Analysis (PRISMA) diagram



Inclusion and exclusion criteria

No restrictions were made for publication date or country of origin, although the search was limited to English-language and peer-reviewed journals only. Since the research question specified healthcare professionals and quantitative data, the population was restricted to healthcare professionals and the study design to quantitative and mixed methodology (if quantitative data could be extracted). Finally, only studies capturing VPTG as opposed to direct PTG were included in this review.

Identification of relevant studies

After the initial search, duplicate papers were removed. The titles and abstracts of the remaining studies were reviewed and those that did not fit the inclusion criteria were removed. An independent reviewer and the primary researcher reviewed the full text of the remaining articles (k=18) using a standardised screening Excel spreadsheet. Discussion between the reviewers resolved any differences of opinion in including or excluding a paper.

Data extraction

Data in relation to authors, publication date, study location, study design, study population, study objectives, measure of PTG, correlations or mediators of PTG and study findings were extracted into an Excel spreadsheet. Data from the spreadsheet can be seen in Tables 2 and 3.

Table 2. Studies demographical results

Study Number & Author	Study aim	Design	Country	*N* and Occupation	Gender (%) *F = Female* *M = Male* *G = Gender fluid*	Age (years) Range *M* *SD*	Professional Experience (years) Range, M, SD	QATSDD quality score (out of 42) (%) Description
1. Beck, Eaton & Gable (2016)	Investigate VPTG in labour and delivery nurses who cared for women during traumatic births.	Mixed Method	US	467 Labour and delivery nurses	F 465 (99.6%) M 2 (0.4%)	M – 47 SD - 10.81	M - 22 SD - 12.02	25 (59.5%) moderate
2. Beck, Rivera & Gable (2017)	What are the levels and experiences of midwifes regarding VPTG.	Mixed Method	US	425 Midwifes	F 416 (98%) M 9 (2%)	M - 51 SD - 11.28	M - 18 SD - 10.80	23 (54.8%) moderate
3. Brockhouse *et al.,* (2011)	Assess the moderating effects of sense of coherence and perceived organizational support on VPTG.	Cross sectional survey	UK	118 Therapists	F 80 (68%) M 38 (32%)	Range 27-73 M - 45.97 SD - 11.67	Range 1-50 M - 13.77 SD - 10.56	24 (57.1%) moderate
4. Cosden *et al.,* (2016)	Understand how implementing trauma informed therapy effects counsellors.	Cross sectional survey	US	51 Drug and Alcohol Counsellors	F 36 (71%) M 15 (29%)	Not Reported	M - 8.28 SD - 5.50	18 (42.9%) poor
5. Frey *et al.,* (2017)	Explore the relationship between VPTG and potential predictors.	Cross sectional survey	US	222 Advocates	F 212 (95%) M 8(4%) G 2 (1%)	Range 20-68 M - 38.25 SD - 12.46	M - 7.32 SD - 7.40	17 (40.5%) poor
6. Linley & Joseph (2007)	Explore factors that may be associated with VPTG in therapists.	Cross sectional survey	UK	156 Therapists	F 122 (78%) M 34 (22%)	Range 27-85 M - 53.67 SD - 10.90	Range 2 - 40 M - 15.10 SD - 8.71	25 (59.5%) moderate

Study Number & Author	Study aim	Design	Country	*N* and Occupation	Gender (%) *F = Female* *M = Male* *G = Gender fluid*	Age (years) Range *M* *SD*	Professional Experience (years) Range, M, SD	QATSDD quality score (out of 42) (%) Description
7. Măirean (2016)	Examine the relationship between STS, perceived social support and VPTG.	Cross sectional survey	Romania	135 22 - Surgery Nurses 14 - Intensive Care Nurses 17 - Emergency Nurses 29 – Neurosurgery Nurses 20 – Cardiology Nurses 18 - Paediatrics Nurses 15 – Oncology Nurses	F 120 (89%) M 15 (11%)	Range 20-65 M - 31.28 SD - 10.77	Range 1-40 M - 7.46 SD - 6.22	20 (47.6%) poor
8. Măirean (2017)	Investigate the relation between traumatic stress & positive posttraumatic experience.	Cross sectional survey	Romania	162 108 - Nurses 54 - Physicians	F 141 (87%) M 21 (13%)	Range 20-65 M - 32.02 SD - 10.69	Range 0-40 M - 7.34 SD - 6.91	19 (45.2%) poor
9. Manning Jones *et al.,* (2016)	Explore the relationship between coping strategies, Secondary traumatic stress and VPTG, also compare differences between types of health professionals.	Cross sectional survey	New Zealand	262 76 - Nurses 72 - Counsellors, 70 - Psychologists 44 - Doctors	*Total including SW (n= 365)* F 299 (82%) M 66 (18 %)	*Total including SW (n= 365)* M - 48.20 *Counsellors* M - 52.76 *Psychologist* M - 44.5	*Nurses* M - 22.68 SD - 12.53 *Counsellors* M - 15.66 SD - 8.87 *Psychologists* M - 13.05 SD - 10.50 *Doctors* M - 19.34 SD - 10.15	24 (57.1%) moderate
10. Manning Jones *et al.,* (2017)	Investigate the nature of the relationship between STS and VPTG.	Cross sectional survey	New Zealand	*103 - Social Workers excluded*				22 (52.4%) moderate
11. O'Sullivan & Whelan (2011)	Investigate the level of VPTG among counsellors and the influence of psychological and environmental factors.	Cross sectional survey	Australia	64 Counsellors	F 45 (70%) M 19 (30%)	Range 18-72 M - 44.84 SD - 15.16	Range 2-15 M - 44.84 SD - 15.16	28 (66.7%) moderate

Study Number & Author	Study aim	Design	Country	*N* and Occupation	Gender (%) *F = Female* *M = Male* *G = Gender fluid*	Age (years) Range *M* *SD*	Professional Experience (years) Range, M, SD	QATSDD quality score (out of 42) (%) Description
12. Rodríguez-Rey *et al.,* (2017)	Evaluate the prevalence of VPTG and explore the role of resilience and coping strategies in predicting VPTG.	Cross sectional survey	Spain	487 177 - PICU Nurses 64 - PICU Nurse Assistants 57 - PICU Physicians 104 - Non PICU Nurses 53 - Non PICU Physicians 32 – Non PICU Assistants	*PICU* F 246 (83%) M 52 (17%) *Non PICU* F 159 (84%) M 30 (16%)	M - 40.20 SD - 9.25 M - 44.12 SD - 11.24	M - 16.18 SD - 8.38 M - 20.56 SD - 11.62	25 (59.5%) moderate
13. Shiri *et al.,* (2008a)	Examine the levels of VPTG and relationship between VPTG and TSS (traumatic stress symptoms)	Cross sectional survey	Israel	207 70 - Physicians 38 - Body Handler 37 - Nurses 31 - Rehab workers 31 - Psychotherapists	*Physicians* F 16 (23%) M 54 77% *Body Handlers* F 0 (0%) M 38 (100%) *Nurses* F 32 (86.5%) M 5 (13.5%) *Rehab Workers* F 26 (84%) M 5 (16%) *Psychotherapists* F 28 90% M 3 10%	*Whole sample* Range 24-65 M - 42.5 *Body Handler* Range 20-59 M - 33.6 *Nurses* Range 24-61 M - 36.7 *Rehab Worker* Range 26-64 M - 35.5 *Not reported for physicians or psychotherapists*	*Not reported*	19 (45.2%) poor
14. Shiri *et al.,* (2008b)	Assess the effects of proximity and immediacyof exposure on PTG/VPTG.	Cross sectional survey	Israel					17 (40.5%) poor
15. Shiri, Wexler & Kreitler (2010)	Explore the motivational basis for VPTG following secondary trauma.	Cross sectional survey	Israel					19 (45.2%) poor
16. Taku (2014)	Examine the relationships between VPTG and burnout.	Cross sectional survey	US	289 Physicians	F 119 (41%) M 157 (54%) *Not reported* 13 (5 %)	Range 24-74 M - 35.79 SD - 11.01	*Not reported*	20 (47.6%) poor
17. Taubman-Ben-Ari & Weintroub (2008)	Evaluate the contribution of secondary traumatisation and personal resources on VPTG.	Cross sectional survey	Israel	124 66 - Nurses (paediatric haemato-oncology, paediatric intensive care, paediatric internal medicine) 58 - Physicians	*Nurses* F 65 (98%) M 1 (2%) *Physicians* F 29 (50%) M 29 (50 %)	Range 29-60 M - 40.20 SD - 9.40 Range 23-56 M - 36.20 SD - 8.40	Range 1-35 M - 11.52 SD - 9.8 Range 1-36 M - 13.2 SD - 9	17 (40.5%) poor
18. Zerach & Shalev (2015)	Assess levels of VPTG in psychiatric and community nurses, and VPTG correlations with patient violence, PTSD, ST and illness attributions.	Cross sectional survey	Israel	196 90 - Psychiatric nurses 106 - Community nurses	Psychiatric nurses F 64 (71%) M 26 (29%) Community nurses F 106 – (100%)	M - 48.30 SD - 9.93 M - 46.37 SD - 9.37	*Not reported*	20 (47.6%) poor

Table 3. Studies results

Study Number & Author	PTGI Measure (Cronbach Alpha -α)	Response rate	PTGI Total Scores Mean (SD) range	Variables	Statistical Analysis	Effect Size	Findings
1. Beck, Eaton & Gable	PTGI 21 Scale (α .95)	16%	58.5 (21.95)	Years of practice	C	S	Midwives reported moderate levels of vicarious posttraumatic growth (VPTG), most reporting growth in the domain appreciation for life (AL). Confirming a positive relationship between the degree core beliefs are challenged and VPTG scores, also between years' experience and VPTG. Effect sizes reported according to Huck (2011).
				Core Beliefs	C	L	
				Core Beliefs	R	NR	
2. Beck, Rivera & Gable (2017)	PTGI 21 Scale (α .94)	11%	37.72 (21.68)	Age	C	S	Most VPTG was reported within the domain of Personal Strength. Confirmed a positive relationship between the degree core beliefs are challenged and VPTG score, also between age and VPTG score. CBI scores account for 43% variance in VPTG scores.
				Core Beliefs	C	L	
				Core Beliefs	R	NR	
3. Brockhouse et al., (2011)	PTGI 21 Scale (α .95)	78.15%	40.46 (21.82)	Past Personal Therapy	T	S	Therapists who had received personal therapy in the past reported higher VPTG scores. Age positively correlated with scores of VPTG, AL and personal strength (PS). Education and working within a clinic base negatively correlated with spiritual change (SC) scores, a negative correlation was also reported between personal trauma and new possibilities (NP) scores. Positive correlations were reported between receiving formal supervision and SC scores, also empathy and all VPTG domain scores apart from SC. Negative correlations were reported between SOC and the domain scores of RO, PS and VPTG. Regression analysis indicated a strong SOC negatively predicted growth, whereas empathy and vicarious exposure to violence (VETT) were positive predictors of VPTG.
				Age	C	S	
				Education	C	S	
				Personal Trauma	C	S	
				Supervision	C	S	
				Work setting clinic	C	S	
				Empathy	C/R	M	
				Sense of Coherence (SOC)	C/R	M	
				Vicarious exposure to trauma	R	NR	
4. Cosden et al., (2017)	PTGI 21 Scale (α .97)	NR	45.65 (27.45) 6-105	Trauma history	R	L	Counsellors scores indicated a positive association between vicarious trauma and VPTG, both were associated with trauma histories. THS was a predictor of VPTG scores. A linear relationship between VPTG and scores of the impact of life events scale (IES-R).
				Traumatic Events (n)	R	L	
5. Frey et al., (2017)	PTGI 21 Scale (α .95)	NR	80.66 (25.20)	Compassion Satisfaction (CS)	R	L	Multiple regressions indicated that advocates personal trauma histories predicted VPTG scores. A shared variance between VPTG scores and CS scores was also reported indicating the complexity of differentiating between the two concepts.
				Exposure to trauma	R	L	
				Relationship quality	R	L	
6. Linley & Joseph (2007)	PTGI 21 Scale (α .91)	40%	64.42 (20.08)	Gender	M	NR	Female therapists reported higher VPTG scores than men
				Personal Trauma	M	NR	Therapists who had experienced personal trauma and received therapy reported more VPTG.
				Previous Therapy	M	NR	
				Current Therapy	M	NR	Those who received formal supervision reported higher VPTG scores.
				Supervision	M	NR	Therapists with greater lengths of service reported more negative psychological changes.
				Length of service	C	S	Those trained and working in a cognitive behaviour therapy (CBT) therapeutic modality were less likely to report positives on the PTGI compared to those working and trained in transpersonal modalities.
				Trained Therapeutic Model CBT	C	S	
				Trained Therapy Model Transpersonal	C	M	
				Practicing Therapeutic Model CBT	C	S	Therapists who reported greater hours per week spent with clients reported more VPTG Empathy, SOC, the therapeutic bond and social support were all significant moderators for VPTG.
				Practicing Therapy - Transpersonal	C	S	
				Workload	C	S	
				Empathy	R	NR	
				Sense of Coherence	R	NR	
				Therapeutic Bond	R	NR	
				Social Support	R	NR	

Study Number & Author	PTGI Measure (Cronbach Alpha -α)	Response rate	PTGI Total Scores Mean (SD) range	Variables	Statistical Analysis	Effect Size	Findings
7. Măirean (2016)	PTGI 21 Scale (α .95)	55.05%	80.16 (14.30)	Secondary trauma symptoms (STS)	C	S	STS (Intrusions) scores negatively correlated with scores of the new possibilities and personal strength domains.
				Experience	C	M	STS (Avoidance & arousal) scores negatively correlated with scores of the relating to others, new possibilities and personal strength domains.
				Hours worked per week	C	S	The VPTG domain did not correlate with any of the social support type scores.
				Social support - Emotion	C	S	Also developed a structural equation model of VPTG and its moderators.
				Social support - Tangible	C	S	
				Positive Social Interaction	C	S	
8. Măirean (2017)	PTGI 21 Scale (α .95)	NR	78.89 (15.57)	Secondary trauma symptoms	C	S	STS scores negatively correlated with VPTG, personality scores and experience.
				Experience	C	S	VPTG scores correlated positively to all personality domains apart from neuroticism.
				Neuroticism and Extraversion	C	S	Low STS scores and high openness scores incurred higher VPTG scores.
				Consciousness and Openness	C	M	Low STS scores and high agreeableness scores incurred high VPTG scores.
				Agreeableness,	C	S	
				Secondary trauma symptoms	R	NR	
				Personality	R	NR	
				Experience	R	NR	
9. Manning-Jones et al., (2016a)	PTGI 21 Scale (α .95)	NR	Nurses 81.53 (21.22)	Gender	T	NR	Overall there were no significant effects of gender.
				Profession	R	NR	Total mean VPTG scores of all the professions was compared, nurses reported the most VPTG.
				Secondary trauma symptoms	R	S/M	
				Total Support	C	S	Multiple regression of professions revealed that STS scores only prediction VPTG scores in psychologists.
			Counsellor 78.51 (23.90)	Supervisory Support	C	S	
				Friend/Family Support	C	S	Total support and peer support were the only support types to positively correlate with VPTG scores.
10. Manning-Jones et al., (2016)				Peer Support	C	S	
				Self Care	C	S	A curvilinear model, specifically for psychologists. Overall, variables were able to explain 23% of the variance in psychologists' VPTG scores.
			Psychologist 72.04 (22.69)	Humour	C	S	
				Weekly hours with client	R	M	
				Humour	R	S	
			Physician 3.17 (21.18)	Self Care	R	S	
				Peer support	R	S	
11. O'Sullivan & Whelan (2011)	PTGI 21 Scale (α .95)	35%	41.34 (22.99) 1-80	Calls per shift	R	S	Calls per shift was significantly negatively correlated with the VPTG domain of relating to others scores only. Empathy scores positively correlated with spiritual change scores. Compassion fatigue scores correlated with RO and PS scores, regression analysis revealed it was a significant predictor of VPTG. Crisis support did not s correlate with any variables.
				Empathy	R	S	
				Compassion Fatigue	R	S	
				Crisis Support	R	S	
12. Rodríguez Rey et al., (2017)	PTGI Short Form (α .83)	NR	PICU 6.84* (2.17)*	Area of work	Chi	NR	Professionals working in paediatric intensive care unit (PICU) reported significantly lower SC scores, compared to non-PICU workers.
				Demographics – Age, Gender, Martial	C	S	VPTG scores were uncorrelated to resilience, and positively correlated to emotion focused coping scores.
				Status	C	S	
				Years Experience	C	S	
			Non PICU 6.80* (2.31)*	Night shifts	C	S	VPTG scores did not differ by most of the demographics. However, a patient had died a week prior to taking part in the study participants reported more AL.
				Conflict with a colleague	C	S	
				Patient death	C	S	This study also conducted a path analysis with latent variables.
				Coping style	C	S	
				Resilience	C	S	

Study Number & Author	PTGI Measure (Cronbach Alpha -α)	Response rate	PTGI Total Scores Mean (SD) range	Variables	Statistical Analysis	Effect Size	Findings
13. Shiri et al., (2008a) 14. Shiri et al., (2008b) 15.. Shiri, Wexler & Kreitler (2010)	PTGI 21 Scale (α .95)	Nurses 63.4% Physicians 68.6% Psycho-therapists 73.8% Rehab Workers 67.4% Body Handlers 70.6%	Nurses 45.1 (25.6) Physician 19.2 (19.1) Psycho-therapist 35.7 (23.3) Rehab Worker 32.7 (20.5) Body Handler 62 (24.3)	Profession Age Gender Time since treating patient Traumatic Stress Symptoms Cognitive orientation of growth	R R R R R R	NR	Females reported high VPTG scores than males. Nurses and psychotherapists recorded significantly higher VPTG scores than doctors. Body handlers recorded significantly higher VPTG scores than rehab workers. Traumatic stress symptoms predicted VPTG scores across the sample. A curvilinear relationship between traumatic stress symptoms and VPTG scores. stress symptoms and positive psychological impact. Regression analysis reported between VPTG scores and belief types (self, general beliefs, beliefs about norms, goal beliefs).
16. Taku (2014)	PTGI Short Form (α .85)	34.56%	36.16 (6.22)	Emotional exhaustion Personal accomplishment Depersonalisation Family Support Resilience	C C R R R	M M S S S	VPTG scores positively correlated with resilience scores and negatively with all three burnout variables. No significant correlation was found between family support and VPTG score. Hierarchical regression revealed that higher VPTG scores were associated with low levels of emotional exhaustion. Overall higher VPTG scores, resilience and family support were associated with lower levels of burnout.
17. Taubman-Ben-Ari & Weintroub (2008)	PTGI 21 Scale (α .90)	NR	Physician 2.58* (0.68)* Nurses 3.17* (0.71)*	Age Experience Patient death Optimism Professional self-esteem secondary trauma secondary trauma	C C C C C C R	S S S S M S NR	The total mean VPTG scores between nurses and doctors were compared, nurses reported experiencing significantly more VPTG. VPTG scores in PS were significantly correlated with professional self-esteem scores. Physicians also experience higher VPTG scores in the domain of AL. The variables of age with professional experience and exposure to patient death accounted for 13% of the variance in VPTG scores, when added secondary trauma account for 3% of the variance.
18. Zerach & Shaley (2015)	PTGI 21 Scale (α .93)	NR	Psychiatric Nurses 64.65(17.78) Community Nurses 69.45 (18)	Demographics PTSD symptoms Secondary trauma Internality Chance Powerful others Multiple	T/Chi C C C C C R	S S/M S/M S S S NR	For nurses in general their VPTG scores were negatively correlated with vicarious trauma and PTSD symptom scores. Compared to community nurses, psychiatric nurses experienced significantly lower NP and PS scores.There were also significant positive correlations between the variables change and VPTG, as well as powerful others and VPTG. Regression analysis revealed that exposed to violence in the workplace was a predictor of VPTG.

Abbreviations

Statistical Analysis		**Effect Size**	**General**	
T = T-Test	Chi = Chi Square	S – Small	* - represents mean rating not total mean score	VPTG – Vicarious posttraumatic growth
R = Regression	C = Correlation	M - Medium	PTGI – Posttraumatic Growth Inventory	NR – Not reported
M = MANOVA	A = ANOVA	L - Large	PTSD – Posttraumatic Stress Disorder	CBT – Cognitive Behaviour Therapy

Results

Studies characteristics

A total of 18 studies were included in this review accounting for a total of 3,365 health professionals, with a range of demographics (see Table 2). Study sample sizes ranged from 51 to 487. Of the 18 studies, the majority were conducted in the USA and Israel. Most were cross-sectional, with two of mixed methodology. The studies' aims differed from exploring VPTG as an experience to investigating moderators of VPTG. All of the studies used an adapted version of the Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) apart from Rodríguez-Rey *et al*. (2017) and Taku (2014) who used an adapted version of the Post-Traumatic Growth Inventory Short Form (PTGI-SF; Cann, Calhoun, Tedeschi, & Taku, 2010).

Quality assessment

All 18 studies were assessed using the Quality Assessment Tool for Studies with Diverse Designs (QATSDD; Sirriyeh, Lawton, Gardner, & Armitage, 2012). The main rationale for using the QATSDD includes its applicability to mixed method studies, also good reporting of reliability and validity (Sirriyeh *et al*., 2012). The 14 QATSDD quantitative studies items, which include a four-point scale from 'not at all' (0) to 'complete' (3), were used. For each study, a total percentage score was calculated. Percentage scores within the 0–49% range were classed as 'poor quality', 50–74% 'moderate quality' and 75%–100% as 'high quality'. An independent assessor reviewed four randomly selected papers and their quality scores were not dissimilar from the primary researchers, with all being in the same score range. The quality scores ranged from 17–28 (41%–67%), with a mean of 21 (51%). See Table 4 for full results. None of the studies were excluded from the review due to their quality ratings.

Several studies were written by the same authors using the same data. Three by Shiri, Wexler, Alkalay, Meiner and Kreitler (2008a, 2008b); and Shiri, Wexler, Schwartz, Kadari and Kreitler (2010) all received quality ratings in the poor range, whereas Manning-Jones, de Terte and Stephens' (2016, 2017) papers both received ratings in the moderate range. Beck, Eaton and Gable (2016); Beck, Rivera, and Gable (2017) and Măirean (2016a, 2016b) have multiple papers in this review; however, they recruited different participants. Beck *et al*.'s (2016, 2017) papers received quality ratings in the moderate range, whereas Măirean's (2016a, 2016b) were in the poor range. On observation, there appears to be a trend of VPTG research both within the Israel (k=5) and USA (k=4). From viewing the quality ratings, the Israeli studies seem to be of lower quality as they have little reflection on their strengths and limitations.

None of the studies included evidence of the participants being involved in the study design, the majority did not consider sample size, and only the studies by Manning-Jones *et al*. (2016, 2017) mentioned power analysis. It was difficult to establish a rationale for choice of data collection tool, few mentioned that the PTGI is a widely used measure and had been used by previous studies to analyse VPTG. Beck *et al*. (2016) was the only study to receive full scoring for fit between research question and method of data collection, as they highlighted that a qualitative study design could have captured similar data.

Table 4. QATSDD scoring

QATSDD Items	Study Number																	
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
1. Explicit theoretical framework	3	3	3	1	1	2	1	2	2	1	3	2	1	1	3	1	2	3
2. Statement of aims /objectives in main body of report	3	3	3	2	2	2	2	3	3	3	3	3	2	1	2	1	2	3
3. Clear description of research setting	2	2	2	2	2	3	2	2	1	1	3	2	3	2	2	2	2	2
4. Evidence of sample size considered in terms of analysis	0	0	0	0	0	0	0	0	2	2	0	0	0	0	0	0	0	0
5. Representative sample of target group of a reasonable size	2	2	2	3	2	3	2	2	2	1	2	2	2	1	2	2	2	2
6. Description of procedure for data collection	2	2	2	2	0	2	2	1	2	1	1	2	2	1	2	2	2	2
7. Rationale for choice of data collection tool(s)	0	0	0	0	0	1	0	0	1	0	2	3	2	1	0	0	0	0
8. Detailed recruitment data	3	3	2	0	0	3	2	0	1	0	2	0	2	2	2	3	1	0
9. Statistical assessment of reliability & validity of measurement tool(s)	2	2	1	2	2	1	2	2	2	2	3	2	0	2	2	2	2	2
10. Fit between stated research question and method of data collection	3	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	1	2
11. Fit between research question and method of analysis	3	2	3	3	2	3	2	2	2	3	3	3	2	2	2	3	1	2
12. Good justification for analytical method selected	0	0	2	0	2	1	1	1	2	3	1	2	1	1	0	0	1	0
13. Evidence of user involvement in design	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14. Strengths and limitations critically discussed	2	2	2	1	2	2	2	2	2	3	3	2	0	1	0	2	1	2
Total score (out of 42)	25	23	24	18	17	25	20	19	24	22	28	25	19	17	19	20	17	20
% of maximum quality score	59.5	54.8	57.1	42.9	40.5	59.5	47.6	45.2	57.1	52.4	66.7	59.5	45.2	40.5	45.2	47.6	40.5	47.6
Descriptive quality rating	moderate	moderate	moderate	poor	poor	moderate	poor	poor	moderate	moderate	moderate	moderate	poor	poor	poor	poor	poor	poor

Narrative review

Overall, from the 18 studies, 23 total PTGI mean scores were extracted. Using the meta-analysis program, Comprehensive Meta-Analysis, Version 3, a random effects model of the total PTGI mean scores gave a point estimate, 0.54; 95% CI, 46.85–62.35, $p < 0.01$. High heterogeneity was reported ($I^2 = 99.58$). Due to the high heterogeneity it was decided to continue with a narrative synthesis in accordance with guidelines by Popay *et al*. (2006). The studies reported on a variety of different factors which influence VPTG. These results have been categorised into personal and organisational factors and the main findings are detailed in Table 3.

Personal Factors

Age

Four studies explored age. Rodríguez-Rey *et al*. (2017) reported a weak negative correlation between appreciation of life and age, also a weak positive correlation between spiritual change and age. This indicates that younger professionals reported less appreciation of life, whereas older professionals reported more spiritual change. In contrast to this, Brockhouse *et al*. (2011) reported a weak positive correlation between appreciation of life and age, as well as weak positive correlations between personal strength, VPTG and age. This may be a consequence of Rodríguez-Rey *et al*. (2017) using the PTGI-SF. A weak positive correlation between age and VPTG was also reported by Beck *et al*. (2017). Using hierarchical regression analysis, Taubman and Weintroub (2008) reported that age with professional experience and exposure to patient death accounted for 13% of the variance.

Gender

Two studies (Manning-Jones *et al*., 2016; Rodríguez-Rey *et al*., 2017) found that VPTG scores did not differ by gender, whereas Linley and Joseph (2007) described women reporting greater levels of VPTG. Shiri *et al*. (2008a) reported similar findings: using regression analysis they indicated that gender predicted VPTG, with females reporting more VPTG.

Personality

Măirean (2016b) was the only study to investigate the relationship between personality and VPTG. Five major areas of personality were assessed. Neuroticism was found to negatively correlate with VPTG, whereas the remaining areas all showed a weak positive correlation with VPTG. Măirean (2016b) used a hierarchical regression model and concluded that low levels of secondary traumatic stress (STS) and high levels of openness incurred more VPTG, whereas low levels of STS and high levels of agreeableness incurred more VPTG.

Personal trauma

Many of the studies assessed the effects of personal trauma on VPTG. Linley and Joseph (2007) identified that therapists who experienced personal trauma reported greater levels of VPTG. Similar results were obtained by Cosden *et al*. (2016) who reported that trauma history was a significant predictor of VPTG. Linked to this, counsellors who reported that they were in recovery (from substance abuse) reported higher VPTG scores. Cosden *et al*. (2016) conducted regression analysis and found a significant interaction between VPTG and the number of traumatic events experienced. Brockhouse *et al*. (2011) reported a weak negative correlation between personal trauma and new possibilities, indicating that experiencing a personal trauma was related to lower scores of new possibilities.

Personal therapy

Linley and Joseph (2007) reported that those previously and currently receiving therapy reported more VPTG. Brockhouse *et al*. (2011) investigated personal therapy and found that compared to those who had not engaged in personal therapy, those that did reported significantly more VPTG.

Support

Măirean (2016a) assessed whether emotional informational support, tangible support, positive social interactional support and affectionate support correlated with VPTG. The domains of relating to others and personal strength correlated positively with all support types. New possibilities correlated positively with tangible support, whereas spiritual change correlated positively with emotional, informational and tangible support. All effect sizes were within the small-medium range.

Manning-Jones *et al*. (2016) investigated support using the Social Support Scale (SSS; Caplan, Cobb, French, Van Harrison & Pinneau, 1975) with the classifications of total, peer, family/friends and supervisory support. A statistically significant weak positive correlation was found for total support and peer support but not for supervisory and friend/family support. Taku (2014) failed to find a significant correlation between VPTG and family support; however, hierarchical regression analysis revealed that VPTG levels were higher for doctors who perceived lower levels of family support. O'Sullivan and Whelan (2011) explored support using the Crisis Support Scale (Elklit, Schmidt Pedersen & Jind, 2001), reporting no significant correlations between VPTG and crisis support.

Peer Relationships

Frey *et al*. (2017) explored the quality of peer relationships. Using the peer-related section of the relational health indices (RHI; Liang *et al*., 2002) peer relationship qualities of engagement, authenticity and empowerment were analysed. A moderate positive correlation was reported between RHI-peer scores and VPTG. Multiple regression analysis indicated that higher RHI-P scores predicted higher VPTG scores**.**

Coping strategies

Manning-Jones *et al*. (2016) investigated correlations between VPTG and different coping styles such as self-care and humour. Both revealed significantly small to moderate positive correlations. Stepwise regression analysis revealed that humour predicted 8% of VPTG variance and self-care explained 5%, suggesting that coping strategies may enhance the likelihood of VPTG. Rodríguez-Rey *et al*. (2017) explored VPTG and coping strategies. A small positive correlation was found between VPTG and emotion-focused coping, specifically rumination, as well as problem-focused coping, particularly problem solving and positive thinking.

Resilience

Resilience and its relationship with VPTG was explored by Taku (2014). The results indicated a small to moderate positive correlation.

Personal beliefs

Beck *et al*. (2016, 2017) administered the Core Belief Inventory (CBI; Cann, Calhoun, Tedeschi, Kilmer *et al*., 2010) to investigate personal beliefs. Both studies reported that VPTG was

significantly correlated with CBI scores indicating that the greater a person's core beliefs are challenged, the more VPTG they experience. Both studies conducted multiple regression analyses and CBI scores were the only significant predictors of VPTG accounting for 55% and 43% of the variance. Beck *et al*. (2016) reported that this reflects a large effect size; however, the level of significance was set at $p < .001$. Shiri *et al*. (2010) concluded that beliefs regarding norms, goals and the self were correlated with VPTG domains, suggesting that cognitions and beliefs play a role in VPTG.

Occupational Factors

Profession

The studies investigated VPTG in advocates, body handlers, counsellors, therapists, nurses, doctors, psychologists and psychotherapists. Nurses and therapists were the professionals investigated the most. When comparing nurses total VPTG scores with doctors, both Manning-Jones *et al*. (2016, 2017) and Taubman and Weintroub (2008) found that overall, nurses reported higher levels of VPTG. Shiri *et al*.'s (2008a, 2008b, 2010) comparisons revealed that nurses and psychotherapists both experienced significantly greater VPTG than doctors, while body handlers experienced significantly greater VPTG than rehabilitation workers.

When investigating the same profession working in different departments, e.g. nurses from surgery, intensive care, cardiology, oncology and paediatrics, Măirean (2016a) found no significant differences in VPTG levels. Using ANOVA analysis, Zerach and Shalev (2015)

reported that psychiatric nurses had significantly lower scores of new possibilities and personal strength compared to community nurses. Using chi-squared analysis, Rodríguez-Ray *et al*. (2017) reported that paediatric intensive care unit (PICU) personnel experienced lower spiritual change scores compared to non-PICU personnel.

Experience

Rodríguez-Ray *et al*. (2017) reported a weak negative correlation between years of practice and appreciation of life, and a weak positive correlation between years of practice and total VPTG score, including the domain spiritual change, while Beck *et al*. (2016) found a weak positive correlation between years of practice and VPTG for nurses. Măirean (2016a) reported a weak positive correlation between VPTG, professional experience and relating to others. Contrary to this, using regression analysis Cosden *et al*. (2016) found that years of experience was not a significant predictor of VPTG. Whereas Linley and Joseph (2007) reported a weak positive correlation between length of service and negative psychological changes.

Conflict with others

Rodríguez-Ray *et al*. (2017) investigated conflict with both patients and colleagues. No significant associations were found between VPTG and conflict with patients; however, ANOVA analysis revealed significant relationships between conflict with a colleague and new possibilities, in addition to spiritual change.

Patient death

Two studies investigated exposure to patient death. Rodríguez-Ray *et al*. (2017) found that professionals who were exposed to a patient's death the week prior to taking part in the study

reported more appreciation of life. Taubman and Weintroub (2008) found a similar correlation for doctors who were exposed to patient deaths during the six months prior to taking part in the study, whereas a small to moderate negative correlation between patient death and spiritual change was reported for nurses.

Work pattern

Măirean (2016b) reported that the number of hours worked per week did not significantly correlate with VPTG. Whereas Rodríguez-Ray *et al*. (2017) reported a strong negative correlation between those who worked predominantly night shifts and VPTG, as well as a weak negative correlation with relating to others. This is an important consideration when considering the wellbeing of night staff.

Professional self-esteem

Occupational differences were noted by Taubman and Weintroub (2008) who reported a moderate positive correlation between professional self-esteem and VPTG for doctors, but not nurses. Taubman and Weintroub (2008) also reported significant moderate positive correlations for personal strength, for both nurses and doctors.

Organisational support

Using the Perceived Organisational Support Scale (POSS; Eisenberger, Stinglhamber, Vandenberghe, Sucharski, & Rhoades, 2002), Brockhouse *et al*. (2011) measured employee's perceptions of the extent to which they feel the organisation values their contribution and cares about their wellbeing. No significant correlations were found, and in addition, organisational support did not appear to be a predictor of VPTG. However, when using the

Scale of Perceived Organisational Support (SPOS; Eisenberger, Huntington, Hutchison, & Sowa, 1986), Frey *et al*. (2017) revealed a weak positive correlation between VPTG and perceived organisational support (POS).

Clinical supervision

Those who reported receiving supervision reported greater levels of VPTG (Linley and Joseph, 2007). Brockhouse *et al*. (2011) found a weak positive correlation between supervision and spiritual change.

Therapeutic training and orientation

Linley and Joseph (2007) revealed a weak negative correlation between those primarily trained in cognitive behavioural therapy (CBT) and VPTG, as opposed to a moderate positive correlation between those trained in transpersonal therapy and VPTG. These trends continued when working under the same orientations.

Workload and setting

Two studies considered workload. Linley and Joseph (2007) found a weak positive correlation between greater hours of work per week with clients and VPTG. Although O'Sullivan and Whelan (2011) found no significant correlation between VPTG and shift call load for telephone counsellors, they reported a weak negative correlation with relating to others. Furthermore, using regression analysis they found that VPTG and shift call load was negatively associated, in that as the number of calls increased the level of VPTG decreased. Work setting was explored by Brockhouse *et al*. (2011), who concluded that those working in a clinical setting as opposed to a private practice reported more spiritual change.

Empathy

Brockhouse *et al*. (2011) reported weak positive correlations between empathy and VPTG, apart from the domain of spiritual change. In contrast, O'Sullivan and Whelan (2011) reported significant correlation between empathy and spiritual change but not the remaining domains. Brockhouse *et al*. (2011) went on to use regression analysis to explore the relationship between vicarious trauma and VPTG, reporting that empathy was a moderator for the VPTG domain relating to others. Linley and Joseph (2007) also used regression analysis, which indicated that empathy as a significant moderator for VPTG. Linley and Joseph (2007) went on to link this to the therapeutic bond, concluding that both a therapeutic bond and empathy must be present in order to experience VPTG. They hypothesised that the therapeutic bond along with empathy may be the channel in which VPTG is transferred.

Sense of coherence

Sense of coherence (SOC) describes the extent to which the world is seen as comprehensible, manageable and meaningful (Antonovsky, 1987). Using correlational analysis, Brockhouse *et al*. (2011) reported small to moderate negative correlations between SOC and VPTG relating to others and personal strength domains.

Burnout

Burnout and its domains were examined by Taku (2014) using the Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996). The MBI incorporates emotional exhaustion, depersonalisation and personal accomplishment. Findings included a moderate negative correlation between VPTG and emotional exhaustion, indicating that high levels of emotional

exhaustion are associated with less VPTG. Using hierarchical regression analysis, emotional exhaustion was the only significant predictor of VPTG.

A moderate negative correlation was also found between VPTG and depersonalisation, indicating that high levels of depersonalisation are associated with less VPTG. It was also found that depersonalisation was experienced more in those with perceived low levels of family support.

A positive correlation between personal accomplishment and VPTG was found. On further investigation a significant interaction between VPTG and resilience was reported. Overall it was suggested that VPTG may be used as a catalyst for personal accomplishment and resilience for doctors.

Secondary trauma

Of the studies included in this review secondary trauma (ST) was the most investigated variable (k=9). Using the Impact of Event Scale-Revised (IES-R; Weiss & Marmar, 1997), Cosden *et al*. (2016) found a significant positive linear relationship between the IES-R scores and the post traumatic growth inventory (PTGI) total mean scores. Therefore, counsellors who reported experiencing more ST also experienced more VPTG. Brockhouse *et al*. (2011) found a similar relationship.

Using the secondary traumatic stress scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) which explores intrusions, avoidance and arousal; some have reported a negative relationship between ST and VPTG (Măirean, 2016a, 2016b). Măirean (2016a) reported a weak, negative

correlation between intrusions and new possibilities, as well as personal strength. Avoidance and arousal both negatively correlated with relating to others, new possibilities and personal strength. Măirean (2016a) went on to construct a structural equation model/path analysis and reported a significant negative link between ST and VPTG. Similar results were found by Măirean (2016b) who reported a weak negative correlation between VPTG and STSS scores.

Contrary to this, Manning-Jones *et al*. (2017) found a moderate positive correlation between VPTG and STSS scores for psychologists. Additional, hierarchical regression analysis indicated a curvilinear relationship between VTPG and STSS scores, illustrating that as ST increases, VPTG increases but reaches a plateau. A similar curvilinear relationship was reported within Shiri *et al*.'s (2008a) paper, in which ST was measured by the revised PSTD inventory (Solomon *et al*., 1993). ST significantly predicted VPTG for body handlers, doctors, psychotherapists and nurses.

Other studies have reported an assortment of results. Zerach and Shalev (2015) explored ST using the ProQoL (Stamm, 2010). A small negative correlation between ST and VPTG was found for psychiatric nurses, whereas for community nurses a small but significant positive correlation was reported. Taubman & Weintroub (2008) reported no statistically significant correlations between VPTG and ST for doctors or nurses. Although hierarchical regression analysis indicated that ST accounts for 3% of the variance in VPTG, suggesting that higher ST scores are associated with more VPTG. A medium positive correlation between ST and VPTG, only among professionals with low self-esteem, was also reported.

Locus of control

Zerach and Shalev (2015) explored locus of control using the Multidimensional Health Locus of Control Scale (MHLC; Wallston, 2005). A small, statistically significant positive correlation between VPTG and chance was reported, as well as a moderate positive correlation with powerful others (i.e., the belief that a person's health is influenced by other significant people such as doctors).

Exposure to violence

Using hierarchical regression analysis, Zerach and Shalev (2015) found that exposure to violence positively contributed to VPTG. Therefore, the more a nurse was exposed to violence in the workplace, the more VPTG was reported.

Compassion – fatigue and satisfaction

Compassion fatigue (CF) was examined by O'Sullivan and Whelan (2011). Using correlation analysis, a small positive correlation was found between VPTG and CF. When considering the dimensions of VPTG, small positive correlations were found between CF, relating to others and personal strength. Furthermore, a regression analysis found that CF predicted VPTG. Frey *et al*. (2017) was the only study to explore the relationship between compassion satisfaction and VPTG, reporting a medium to large positive correlation.

Discussion

This review identified 18 quantitative studies reporting on VPTG in health professionals. Several personal and occupational factors, correlations and predictors of VPTG were

identified. All the studies were of cross-sectional methodology therefore no causality can be concluded.

Without taking into consideration the quality of the studies the most consistent personal factors associated with VPTG were personal trauma and support. Those who reported a trauma history or engaging in personal therapy also reported higher levels of VPTG (Linley & Joseph, 2007; Cosden *et al*., 2016; Brockhouse *et al*., 2011). According to the transformational model of PTG (Calhoun & Tedeschi, 2006) deliberate rumination plays a key facilitative role of PTG. It could be hypothesised that engaging in therapy increases a professional's deliberate rumination, thereby facilitating both direct PTG and VPTG. Linley and Joseph (2007) hypothesised that empathy may be the channel in which VPTG is transferred. If professionals have experienced similar adversity to their patients, this may increase their empathic response, thus facilitating more VPTG.

Support was another coherent personal factor associated with VPTG. This somewhat validates the transformational model of PTG (Calhoun & Tedeschi, 2006). Although there are discrepancies in which types of social support are useful, peer support appears to have a positive influence on VPTG (Manning-Jones *et al*., 2016; Frey *et al*., 2017). Interestingly, neither study provided a definition of peer relationship, therefore it is unclear whether peer relationships included work colleagues or those from outside of work.

Regarding occupational factors secondary trauma was the most explored (k=9), resulting in three conclusions: a curvilinear relationship (Shiri *et al*., 2008a), a linear relationship (Cosden *et al*., 2016) or no relationship (Taubman & Weintroub, 2008). This implies that the

relationship between secondary trauma and VPTG is complex, with possibly several influencing factors. Overall there is no clear consensus of the relationship between secondary trauma and VPTG. Further research of these variables would be beneficial.

When taking into consideration the studies quality ratings, none of the studies scored within the QATSDD 'high quality' percentage range, eight studies scored within the 'moderate quality' range, with the remaining ten studies all scoring in the 'poor quality' range. It could be assumed that higher quality studies report more reliable findings, therefore from reviewing the results of the eight studies which scored within the moderate quality range, their amalgamated findings suggest that the most consistent personal factors associated with VPTG were age, gender, personal therapy and coping strategies.

The personal factor of gender was investigated by Manning-Jones *et al*., (2016); Rodríguez-Rey *et al*., (2017) and Linley and Joseph (2007). Both Rodríguez-Ray *et al*. (2017) and Manning-Jones *et al*., (2016) reported no significant gender differences in VPTG scores, whereas Linley and Joseph (2007) reported that women experience more VPTG than men. Although it is challenging to draw any firm conclusions from these different findings, there is more evidence to suggest that gender differences do not affect VPTG, therefore men and women are just as likely to experience VPTG.

With regards to the personal factor of age a similar discourse was found, both Beck *et al*. (2017) and Brockhouse *et al*., (2011) reported finding significant weak positive correlations between age and VPTG, whereas Rodríguez-Ray *et al*. (2017) reported a significant weak negative correlation. Again, it could be cautiously reported that these different findings

indicate a significant weak positive correlation between age and VPTG, suggesting that older adults experience more VPTG.

The other personal factor of personal therapy was investigated by Brockhouse *et al*., (2011) and Linley and Joseph (2007). Both consistently reported finding that those who had previously received personal therapy significantly reported more VPTG than those who had not. It could be hypothesised that the process of receiving therapy may have supported individuals to deliberately ruminate and problem solve, which are both key components within VPTG.

Aside from the personal factors two organisational factors were consistently reported by the moderate quality studies; secondary trauma and empathy. Secondary trauma was reported by two of the eight studies (Manning-Jones *et al*., 2017 and Brockhouse *et al*., 2011). Both reported finding significant positive correlations between VPTG and secondary trauma scores, indicating that if professionals had experienced some form of secondary trauma they reported more VPTG. The other organisational factor, Empathy, was investigated by three studies (Brockhouse *et al*., 2011; O'Sullivan and Whelan, 2011; Linley and Joseph 2007). All consistently reported that empathy was a moderator for VPTG, therefore it could be reliably reported that the professionals' amount of empathy affects their VPTG experience.

Overall the most reliable and consistent results from this systematic review suggest that empathy, secondary trauma, age and experience of personal therapy are related to VPTG. Again, it should be noted that due to the small number of studies which have explored VPTG, it is difficult to draw any firm conclusions. There was also a large amount of heterogeneity

between the studies which may account for inconsistencies. The studies all ranged in sample size, occupations (n=10) and cultural differences. Methodologically all studies administered the same measure (PTGI), although this measure is widely used in PTG research it was not constructed to capture VPTG, which has subtle differences (Manning-Jones *et al*., 2015). Therefore, use of the PTGI may have contributed to the inconsistency of findings.

In comparison, the results of this systematic review are akin to those previously conducted (Bartoskova, 2015; Cohen & Collins, 2013 and Manning-Jones *et al*., 2015). Similarly, all the systematic reviews highlighted a large amount of inconsistencies in the results of their included studies, this may be indicative of a larger need for more research in this area.

Limitations

Consideration should firstly be given to the inclusion and exclusion criteria of this review. The exclusion of other professionals such as social workers may have contributed to the inconsistency of findings. Additionally, the diversity of the samples and studies' methodological qualities may have limited the strength of conclusions. The QATSDD ratings indicate an 11 point (26%) difference between the highest and lowest scored papers, which represents a lack of consideration regarding sample size as well as power analysis, and an infrequency in which rationale for data collection and analytical methodology was discussed. Finally, it should be noted, as observed by Frey *et al*. (2017), that there appears to be overlap in the terms used for VPTG. Although the overlapping of terminology was accounted for in the search terms used, this may represent a conflation of concepts. Research exploring the differences of these terms, also the differences between VPTG and PTG, would reward the VPTG literature with more credence.

Future research

Future research in the development of a validated measure of VPTG would be beneficial. This would be aided by a comprehensive model and theory of VPTG, which also needs more attention. There appears to be no literature regarding the longevity of VPTG. Therefore, longitudinal studies of VPTG would offer a picture of how VPTG changes overtime. Further research exploring the factors which enhance VPTG, including the differences between VPTG and direct PTG, would offer greater clarity of these two processes that appear to be overlapping, but also diverse concepts. Research has previously concentrated on professionals' personal trauma history, but no research has investigated participant's positive life history and whether this affects VPTG. Finally, more studies representing a range of health professionals with high response rates is needed.

Clinical implications

The results from the moderate quality studies consistently suggest that empathy, secondary trauma, age and experiences of personal therapy facilitate VPTG. After giving thought to these findings some clinical implications are suggested.

Brockhouse *et al*., (2011) and Linley and Joseph's (2007) findings suggest that employees who reported receiving personal therapy reported more VPTG. This finding possibly indicates the efficacy of personal therapy not only in facilitating VPTG but protecting professionals from negative psychological changes. It may be that therapy has given staff members the opportunity to deliberately ruminate on their work place experiences, therefore resulting in VPTG. It is encouraging that most health-related organisations now have support systems or employee services, which signpost or provide employees with access to personal therapy and

counselling. A clinical implication for this finding could be for this to continue and for employees to be made more aware of their accessibility to personal therapy.

Secondary trauma was consistently reported by two studies as being positively correlated with VPTG, therefore those who have experienced secondary trauma reported more VPTG (Manning-Jones *et al*., 2017 and Brockhouse *et al*., 2011). This complements Tedeschi & Calhoun's (2004) model of PTG which suggests that for us to experience growth we must first experience a significant event which shatters our schemas. VPTG is therefore the process of adjusting to a new worldview from vicariously experiencing a patient's significant event. This finding could be used to advocate that organisations utilise a systemic approach to support the vicarious impact of working with patients who have experienced significant life events. This could be in the form of policy and procedural changes and the development of wider support systems such as debriefs and access to clinical supervision. Overall there appears to be the need for a cultural shift. Health professionals should be aware of the potential for both positive and negative change in themselves when working with patients who have experience significant life events. Health professionals should also be aware of the influence this potential change may have on their therapeutic relationship with patients. Awareness to these potential changes could be raised at training and continued professional development events.

Somewhat linked to the findings of secondary trauma and personal therapy is that empathy is a significant moderator of VPTG (Brockhouse *et al*., 2011; O'Sullivan and Whelan, 2011; Linley and Joseph 2007). Brockhouse *et al.,* (2011) describe empathy as a process which reduces the psychological distance between professional and client, therefore 'empathy may

enhance the impact of the vicarious experience and increase the need for accommodation of a new schema'. This complements the conceptualisation of VPTG as the ability to adjust to a new world view (Martin & Tesser, 1996). When training to become a health professional most training routes advocate that empathy is beneficial for the client, a key clinical implication would be to try and change this narrative to emphasise that empathy is also beneficial for the professional. Another clinical implication may include the use of clinical supervision, reflective practice and consultation to nurture empathy. It is positive that most health professions' supporting bodies now recommend that professionals engage in supervision (British Psychological Society, 2014; College of Occupational Therapists, 2015). Coincidently both Linley & Joseph (2007) and Brockhouse *et al*., (2011) recommended supervision as a clinical implication, although there is uncertainty as to what aspects of supervision cultivate VPTG.

With regards to the finding that older adults report more VPTG, a clinical implication could be that those older in age mentor younger professionals. This may encourage younger professionals to learn from both the life and work experiences of their older colleagues.

Conclusion

This is the first systematic review of quantitative studies reporting on VPTG in health professionals, facilitating a standardised quality assessment tool. VPTG is a concept still in its infancy, therefore it was unsurprising that from the comprehensive search strategy used only 18 studies were found. Overall all the studies were ranked within the low-moderate quality ranges. None of the studies included participants in the development of the research and little offered any rationale for their choice of measurement tool. The sparsity of high quality studies

may have attributed to the inconsistent findings. Suggesting that much more research of higher quality is needed to firstly develop a comprehensive model of VPTG and secondly develop a validated measure specific to VPTG. Consequently, this may improve the quality of future studies and increase the likelihood that clinical implications will permeate into clinical practice.

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Paper Two (a): Empirical Paper

Vicarious Post-Traumatic Growth in Oncology Staff
A Q-Methodology study

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Paper Two has been prepared for submission to Psycho-Oncology
(see Appendix 2 for author guidelines).

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Abstract

Objective

Research within the field of post-traumatic growth (PTG) has expanded to include vicarious post-traumatic growth (VPTG) – the positive psychological changes individuals experience from observing the PTG of others. There is growing awareness that healthcare professionals experience VPTG, with some debate regarding its outcomes and underlying processes. Much research has been conducted evidencing PTG in cancer patients, however, very little has explored VPTG in oncology professionals. This study explored oncology professionals' subjective views of VPTG using Q-methodology.

Methods

Q-methodology involves the statistical analysis of the order in which participants rank specific statements associated with a particular topic. A total of 28 professionals working in a specialist cancer centre completed the Q-sort task, including 36 VPTG related statements. A principle component analysis with varimax rotation was then conducted.

Results

The analysis indicated that 27 staff members loaded on to two factors, while one failed to load on to either factor indicating an idiosyncratic view point. The two factors were labelled *'enriching and exposing to the transience of life'* and *'connection neighbouring disconnection'*. No distinguishing demographics correlated between the two factors. Both factors differed over which aspects of VPTG staff agreed and disagreed with; however, there was a consensus that most did not experience spiritual change.

Conclusions

The findings of this study indicate that oncology professionals feel they experience VPTG: mostly appreciation for life. Implications of VPTG for clinical practice and future research are discussed.

Background

Every year, in Wales, more than 19,000 people are diagnosed with cancer.[1] For many, the experience of diagnosis, treatment and living with the impact after treatment can be traumatic,[2] with some enduring a range of psychological issues from depression to symptoms of post-traumatic stress.[3]

In addition to patients experiencing negative psychological distress from their cancer experience, research has also explored the positive psychological changes, such as post-traumatic growth (PTG). The term PTG was firstly adopted by Tedeschi and Calhoun[4] and is used to describe personal growth as a result of a traumatic event. Within their transformational model, a person's schemas and core beliefs are firstly shattered by a traumatic event, e.g. a bereavement, road traffic accident or diagnosis of a serious illness. Several cognitive processes support the individual in gaining a sense of meaning and comprehension. These also facilitate changes in the person's wellbeing within five main areas: appreciation of life, personal strength, relating to others, new possibilities and spiritual change. Hobfoll et al.[5] argue that in order for growth to be authentic it must be accompanied by behavioural change, whereas others argue that this unnecessarily narrows the concept of PTG.[6] PTG has also been contextualised as an illusion. Zoellner and Maercker[7] suggest that the phenomenon is a cognitive avoidance process which offers protection from the initial distress of a traumatic event. Overall, debate continues regarding the underpinning processes of PTG, as well as its outcomes.[8]

Using a range of qualitative and quantitative methodologies, PTG has been captured in patients with a range of cancers including breast, prostate, colorectal and lymphatic, not to mention in a range of patient ages and cancer stages.[9–11]

More recently, researchers have queried whether PTG can be experienced vicariously. Since Arnold, Calhoun, Tedeschi and Cann's[12] seminal paper, an emerging body of research has developed regarding VPTG in partners, parents, psychologists, mental health professionals, psychotherapists and social workers.[13,14]

Much of the PTG literature has been used as a foundation for VPTG, including the domains of PTG. Some VPTG research indicates that professionals experience VPTG in the same five domains as PTG.[15] However, others highlight that there are subtle differences between PTG and VPTG, such as more abstract thinking regarding the resilience of mankind, spiritual broadening and the 'realisation that their work was valuable and that they had the ability to make a difference in the lives of direct trauma survivors'.[16]

Overall, theoretical models and standardised measures of VPTG are still underdeveloped, highlighting the need for more research in this area. Systematic reviews of VPTG to date indicate an emergence of both qualitative and quantitative research among a range of professionals.[17] Interestingly, only one study has specifically investigated VPTG in oncology professionals,[18] compared to 116 studies of PTG in oncology patients.[2] Vishnevsky et al.[18] conducted interviews and applied grounded theory methodology with 30 oncology nurses. Results indicated that nurses experienced a range of VPTG, as well as benevolence and

wisdom. In contribution to the scarcity of research in this area, this study investigates oncology professional's views of their VPTG experiences, using Q-methodology.

Methods

The study received ethical approval from the cancer centres' research and development department (see Appendix 3) and the department of psychology at Cardiff University (see Appendix 4)

Methodology

Q-methodology[19] is a unique hybrid of qualitative and quantitative methodologies, combining the strengths of both. Overall, it aspires to establish a better understanding of opinions and attitudes[20] and therefore, it is useful in underdeveloped research areas, where a variety of views maybe expected, such as VPTG. Q-methodology was selected over traditional paradigms for two reasons. Firstly, compared to interviews, Q-methodology facilities the collection of multiple perspectives from a range of participants in a relatively short amount of time.[21] Some argue that Q-methodology is more synthetic than interviews;[22] however, from the use of pre-developed statements and comparison of individual Q-sorts, multiple viewpoints transpire. Secondly, Q-methodology provokes thinking about topics that would not necessarily have been raised in interviews. Professionals within oncology may have never thought about VPTG before. Therefore, Q-methodology will enable professionals to express their views confidently and with minimum researcher bias as the data is generated and structured by the participants.[23] Consequently, within VPTG literature, a standardised questionnaire is yet to be developed and therefore Q-methodology will help ascertain

professionals' different viewpoints of VPTG, while preserving meaning, as opposed to the mean scores of responses typically captured by Likert scales.[24]

Concourse and Q-set development

In accordance with standard Q-set development VPTG literature including measures, peer-reviewed papers, and grey literature such as online forums, memes and text books were reviewed. Q-set development also recommends using information from focus groups, therefore a focus group to elicit the specialist cancer centre staff members views of VPTG was organised.

Recruitment for the focus group was conducted via a global email, which included an open invitation for staff to attend two focus groups. Ten professionals expressed an interest in attending, seven attended the first focus group and none the second. Attendees of the focus group gave their consent for the session to be recorded and recordings to be used for research purposes. The focus group was moderated by the lead researcher using several VPTG related open questions. The focus group was recorded via dictaphone, the recording was later reviewed and relevant VPTG quotations extracted.

The VPTG related quotations and information collected from the literature was amalgamated and coded into six themes. Five of the themes reflected the different areas of VPTG[4,25,26] and one theme including other aspects such as benevolence and altruism, which some argue should be considered within VPTG.[18] The information was further condensed into statements reflecting the variation of each theme. A preliminary Q-set comprised of 77 statements was

developed and reviewed by the research team (lead researcher and supervisors), who agreed that a saturation point had been reached.

Two pilot Q-sorts involving the 77 Q-statements were completed by an assistant and trainee psychologist. Feedback revealed that too many statements were included, some of which were repetitive. As Schlinger[27] suggests, the number of statements should not be overwhelming. Therefore, after review by the research team, the 77 Q statements were reduced to a more workable 36 (see Table 1).

Participants (P-set) and procedure

Recruitment took place between November 2017 and May 2018. Participants were recruited if they were paid employees working within the specialist cancer centre. Invitations were expressed via a global email which included a poster with a hyperlink to the online platform (see Appendix 5). The online platform includes the information sheet, consent form, demographics form and Q-sort (see Appendix 6). Invitations were also handed out at several team meetings in which staff were given posters and reminder cards (Appendix 5). If participants wished to complete the study on paper or with technical support, they were encouraged to contact the lead researcher via email. Completion of the study took, on average, 20 minutes.

Table 1. Q sort statements

Number	Q Statement	Domain of VPTG
1	I learned to work through problems and not just give up.	Personal Strength
2	I've become less worried about death.	Other
3	I find myself placing less emphasis on material things.	Appreciation of Life
4	I am better at socialising and communicating openly and honestly with everyone.	Relating to Others
5	Working in this field fits well with my core values.	Other
6	I'm more accepting of who I am, including my strengths and limitations.	Personal Strength
7	I understand better how God allows things to happen.	Spiritual Change
8	I've learnt better ways to express my feelings, I no longer get as angry about things.	Personal Strength
9	I developed/increased my trust in God.	Spiritual Change
10	I feel more confident and less concerned about failure.	Personal Strength
11	I developed/increased my faith in God.	Spiritual Change
12	I have more faith in other people and that they will always be there for you.	New Possibilities
13	I am now more open to other religions/faiths.	Spiritual Change
14	I've found more meaning and satisfaction in life.	Appreciation of Life
15	I feel freer to do things for myself.	New Possibilities
16	My appreciation for the little things has grown.	Appreciation of Life
17	I take life more seriously and no longer take people or things for granted.	Appreciation of Life
18	My relationship with my family has become more meaningful and important.	Relating to Others
19	I've realised that there are more people who care about me than I thought.	Relating to Others
20	I've progressed further in my career, more than I would have anywhere else.	Other
21	I enjoy the feeling I get from helping others.	Other
22	I feel I'm better at seeing people for their true colours.	Relating to Others
23	I'm more positive about my community and feel a bigger part of it.	Relating to Others
24	I discovered a skill/talent I didn't know I had.	New Possibilities
25	Working in this field hasn't been as bad as I thought it would be.	Other
26	I've learnt the importance of self-care and resilience.	Other
27	I now live more for the present moment.	Appreciation of Life
28	I'm a better person, with more tolerance and understanding.	Personal Strength
29	Live life to the full, as you never know what will happen tomorrow.	Appreciation of Life
30	I feel more open to and likely to try things even if there new, a bit challenging and a bit scary.	New Possibilities
31	Because of the strength and bravery of others I have witnessed, I'm more effective and braver.	Personal Strength
32	I've learnt how good people can be and am more aware of how much people care for one another.	New Possibilities
33	I'm now less concerned with the approval of others and worry less about what people think about me.	Relating to Others
34	I am more determined to succeed in life now.	New Possibilities
35	I think more about the true purpose of life.	Spiritual Change
36	My confidence in God increased.	Spiritual Change

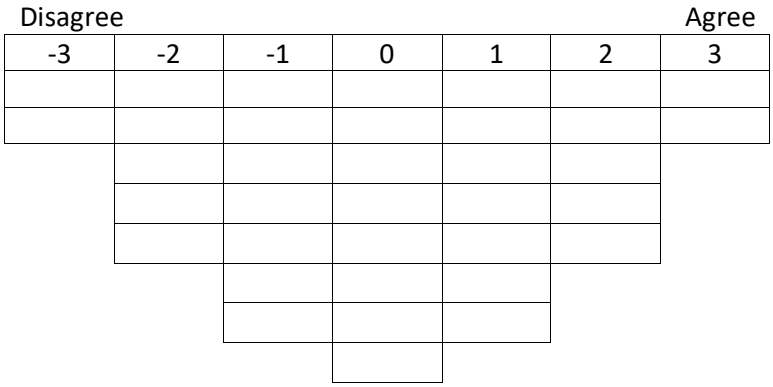
Staff members demographics and response rate

Demographic information is presented in Table 2. Overall, it is difficult to report a reliable response rate specifically as we cannot be sure how many staff members read the global email. Overall, 44 participants viewed the online information sheet and 28 went on to complete the Q-sort (64%). No participants contacted the primary researcher wishing to complete a paper-based version of the Q-sort, however ten participants contacted the researcher and completed the Q-sort with support, which involved accessing the online platform and assistance in moving the statements into the desired boxes.

Measures

Participants were asked to provide demographic information such as age, gender, years of experience, profession and whether they have direct contact with patients. They were then asked to complete the Q-sort via the online application. The sorting process involved participants firstly arranging the statements into three piles – agree, neutral and disagree (see Appendix 6f). The participants were then given a 'forced choice condition of instruction',[28] whereby each statement must be placed on the Q-sort grid (see Figure 1 and Appendix 6g). Instructions for sorting the 36 statements were available throughout via the help button (see Appendix 6g). After completion of the Q-sorts, the participants were asked to comment on their rationale in positioning the two highest and lowest ranked statements (see Appendix 6h).

Figure 2. Q sorting grid



Data analysis

The 28 Q-sorts were coded to reflect staff's occupation and gender. The sorts were then entered into PQ Method, which is a computer program specifically designed for Q-methodology studies and is appropriate for Q-methodological analysis. Firstly, the Q-sorts were inter-correlated to form a correlation matrix. Factors were then extracted using principle component analysis (PCA) with a varimax rotation to maximise variance within the factors.

Table 2. Factors and Q sort characteristics

Factor	Participant Number	Factor Loading	Gender	Age	Occupation	Experience (Years)	Contact with Client	Eigenvalue	% of explained variance
1	2	0.6590	F	37	Patient Related	3	Y	11.2873	25
	4	0.6390	F	55	Radiography	10	Y		
	6	0.6754	F	56	Radiography	19	Y		
	8	0.5805	F	35	IM&T	1	N		
	10	0.3889	F	50	Pharmacy	13	Y		
	11	0.4285	F	26	Radiography	1	Y		
	12	0.4511	M	39	Radiography	10	Y		
	14	0.5708	F	30	Admin	1	Y		
	15	0.5502	F	44	Business	15	N		
	16	0.6596	F	31	Therapies	1	Y		
	17	0.7150	F	45	Business	1	N		
	19	0.5660	F	24	Radiotherapy	3	Y		
	21	0.7331	F	53	Nurse	18	Y		
	22	0.5332	F	35	Nurse	4	Y		
	24	0.7092	F	56	Radiography	34	Y		
	26	0.6967	F	46	Pharmacy	23	Y		
2	1	0.6392	F	25	Therapies	1	Y	2.2444	23
	3	0.7166	F	29	Radiography	3	Y		
	5	0.7664	F	38	Radiography	15	Y		
	7	0.7246	F	35	Research	17	Y		
	9	0.3591	F	36	Radiotherapy	8	Y		
	13	0.6919	F	57	Education	1	N		
	18	0.5724	F	52	Nurse	32	Y		
	20	0.6249	F	28	Nurse	3	Y		
	23	0.6786	F	47	Estates	6	Y		
	25	0.5635	F	40	Manager	3	Y		
	28	0.4603	F	35	Therapies	1	Y		
None loading	27		M	73	Therapies	15	Y		

Results

The 28 Q-sorts generated seven factors with eigenvalues greater than 1. According to the Kaiser-Guttman criteria[29] eigenvalues greater than 1 indicate interpretable factors, i.e. factors which are unlikely to have grouped participant views by chance. Factors were also examined

according to Humphrey's rule, which states that factors are significant if 'the cross product of its two highest loadings exceeds twice the standard error'.[30] The cross product of a two-factor solution matched Humphrey's rule, unlike the three-factor solution. Both factor solutions were also investigated to determine how many sorts loaded significantly onto each factor. The three-factor solution resulted in three idiosyncratic sorts, whereas the two-factor solution resulted in only one.

On further inspection of the sorts and consideration of 'theoretical significance' (e.g. social and political context) it was decided to adopt a two-factor solution (see Table 2). The two-factor solution accounts for 48% of the variance. According to Kline[31] a variance of between 35–40% and above is considered a sound solution. A total of 16 of the 28 staff members significantly loaded on to Factor 1 (25% variance) and 11 on to Factor 2 (23% variance). Preliminary analysis indicated no significant demographic differences between the staff members who loaded onto the two different factors, and this was further confirmed via t-test statistical analysis of the two groups demographic ages or years' experience.

Factor interpretations

Figure 2 represents exemplar Q-sorts for each of the factors. To aid interpretation of the factors, consensus statements were identified and each factor array was colour-coded to represent the domains of VPTG each statement represents.

Figure 3. Exemplar Q-sorts

Factor 1

-3	-2	-1	0	1	2	3
7	11*	23	17	32*	5	21
36*	9	13	25	20	29	16
	2	10*	19*	26	3	
	15	12	24	30	18	
	8	33	1	6	28	
		35	31	22		
		27	34	14		
			4*			

Factor 2

-3	-2	-1	0	1	2	3
36*	7	28	30	34	27	18
9	13	24	6	35	26	29
	11*	20	4*	1	14	
	23	10*	5	32*	33	
	12	22	3	31	16	
		2	8	21		
		25	15	17		
			19*			

Exemplar Q sort key

Numbers in the boxes above represent statement numbers			
* represent consensus statements			
	Appreciation of Life		Relation to other
	Spiritual Change		New Possibilities
	Personal Strength		Other

Factor 1: Enriching and exposing to the transience of life

This factor represented 59% of the P-sets viewpoints. The diversity of the P-set can be viewed in Table 2. Overall, this factor was labelled *'enriching and exposing to the transience of life'* to represent the rewarding aspects staff reflected upon, but also the increase in awareness of life's impermanence (See Figure 2 for example of a factor sort). Staff who loaded on to this factor regarded working with patients experiencing cancer as a benevolent job, in keeping with their core values (+2, 5)*, as well as enjoying the feeling of helping others (+3, 21). This was reflected in staff members' feedback.

'I get a huge sense of satisfaction from helping people even if they are end of life. It is important to me to feel that I have made a difference.'

* +2, represents the ranking, 5 represents the statement number

Staff members in this factor also agreed with statements reflecting a greater appreciation for life including 'my appreciation for the little things has grown' (+3,16) and 'live life to the full, as you never know what will happen tomorrow' (+2, 29). This was represented in the staff members' feedback.

'Seeing that suddenly life can be changed in an instant by a cancer diagnosis it allows me to appreciate the smaller things in life and to appreciate how lucky I am.'

Staff also agreed with some of the other elements of VPTG such as new possibilities, 'I feel more open to and are likely to try things even if they're new, a bit challenging and a bit scary' (+1, 30) and personal strength, 'I'm a better person, with more tolerance and understanding' (+2, 28). One staff member's quote said this: *'tolerance and empathy for others has also manifested as tolerance and empathy for self.'*

The statements ranked lowest by employees related to spiritual change (-3, 7; -3,36). Staff either noted that they '*don't have faith*', or that their faith had not changed, *'I was raised as a Christian and my job has not change or altered my views/beliefs'.* Staff also disagreed that they had become less anxious regarding death (-2,2), in fact the feedback suggests the opposite:

'This job has made be very paranoid about my health and the health of those around me. I fear death more than I ever did!'

The P-set also disagreed with statements reflecting the VPTG domains; relating to others, new possibilities and personal strength. Interestingly, staff disagreed with 'I've learnt better ways to express my feelings, I no longer get as angry about things (-2,8). This may be linked to the

low-ranking statement, 'I understand better how God allows things to happen' (-3,7) as highlighted by a staff member's feedback:

'I never understand how bad things happen to good people'.

Factor 2: Connection neighbouring disconnection

This factor represented 41% of the P-set. The diversity of the P-set can be viewed in Table 2. The label, 'connection neighbouring disconnection' was given to this factor to represent staff's views on relationships within both the 'normal' world but also a 'cancer-related' world.

Similar to Factor 1, staff acknowledged a greater sense of appreciation for life by strongly agreeing with the statements, 'live life to the full, as you never know what will happen tomorrow' (+3,29), and 'I take life more seriously and no longer take people or things for granted' (+1, 17). Numerous staff members offered their reflections on why they agreed with these statements:

'Just because you are fit and healthy doesn't mean they you'll live until you are grey and old...anything can happen! So, you just have to be thankful for today and live life to the full while you still can.'

Although the two factors appear to have similarly ranked statements of appreciation for life themes, employees of this factor ranked statements regarding the VPTG domains relating to others and new possibilities much lower (see Figure 2). Staff members of this factor disagreed with the statement, 'I'm more positive about my community and feel a bigger part of it' (-2, 23). This may reflect the closely integrated professional community within the cancer centre

or a sense of detachment from the surrounding community. One staff member acknowledged that:

'This profession has made me more disconnected from people in general, but I feel more connected to the people I love.'

This paradoxical feedback may represent societal or cultural difficulties in discussing uncomfortable topics. Research has suggested that cancer patients and their support networks engage in avoidance strategies to maintain normality and optimism, also protect themselves from discomfort.[32] Members of this factor may have experienced this from those around them and subsequently decided to concentrate on connections with their loved ones, increasing their appreciation of life. Therefore, although staff members may feel more connected with family members and their colleagues, they may feel a disconnection with the wider public. This also links with the highly ranked statement, 'my relationship with my family has become more meaningful and important' (+3, 18), which was reflected in a staff member's feedback:

'I've learnt to appreciate my time with family and friends since working here. I've realised they aren't going to be around forever so you have to make the most of the time you have with the people you love.'

Staff also disagreed with the statement, 'I have more faith in other people and that they will always be there for you' (-1,12). This may reflect the disconnection with the community already mentioned. Interestingly, staff also felt that they had learned how good people can be and were more aware of how much people care for one another (+1, 32). Quotes from two

staff members suggest that these statements refer to colleagues, patients and patient's relatives:

'I work with some amazing and inspiration people who do wonderful things'.
'Watching relatives caring for their loved ones can be very moving.'

Overall, this factor represents the complex interplay of being positioned both within the 'cancer-related' and 'normal' world, specifically in regards to relationships with others and the transience of life.

Consensus statements

Additionally, PQ Method identified six consensus statements, which are statements equally rated across the two factors. There was strong disagreement for increased faith (-3, 36) and confidence in God (-2, 11). Feedback obtained from the staff indicated that they most strongly disagreed with these statements as they deemed themselves agnostic.

Staff across the two factors also disagreed with feeling more confident and less concerned about failure (-1, 10). Some employees mentioned that they worried more now regarding what support and treatment they can provide to patients. This may be indicative of staff members increased awareness of the fragility of life, making it more important for them to provide the appropriate care to those experiencing cancer.

There were no strong feelings regarding being better at socialising (0, 4) and realising that there are more people who care about you (0, 19). This suggests that social skills and having good social support are predisposing and maintaining factors to working in a specialist cancer centre.

Comparison between Factor 1 and 2

The two factors were significantly correlated (r = 0.68) indicating a strong positive relationship and agreement with the experience of VPTG in oncology settings.

Idiosyncratic viewpoint

One Q-sort did not load on to either factor. This indicates that this view is very different to the others. On review, this is the only Q-sort which strongly agreed that they experienced spiritual change from their work. It is unsurprising that a pastor[†] with strong spiritual beliefs developed this Q-sort.

Conclusions

The Q-sorts from 27 staff members of a specialist cancer centre indicated that they had all experienced some degree of VPTG. This echoes the findings from Vishnevsky et al.'s study.[18] According to the analysis of the 28 Q-sorts, appreciation for life was experienced the most, and the least was spiritual change.

A two-factor solution was reported, with the main factor termed '*enriching and exposing to the transience of life.'* This factor represented staffs increased awareness of life's fragility, also their increased sense of satisfaction, complimentary to their values for living. Some felt that they had developed better qualities such as patience, tolerance, empathy and compassion. Similarly, in Cohen and Collens[33] review staff members reported both the enriching and

[†] Special permission was obtained from the pastor to waive his anonymity.

exposing consequences of their work. Identical to this study, staff members reported more preoccupations with their own health and the health of their loved ones, this may represent some form of secondary trauma.

The second factor, *'connection neighbouring disconnection',* represented the complex relationships of working with cancer, but also living in the 'normal' world. Staff reflected that they felt more connected with family members and that these relationships had become more meaningful; however, staff also expressed the view that they felt disconnected from the community. These results echo those by Chopko, Palmieri and Adams,[34] who reported that although many police officers reported a range of VPTG elements, many also reported feeling detached and used emotional detachment as a coping mechanism. This factor also suggested that the majority agreed they experienced a greater appreciation of life. These results match those of Vishnevsky et al.[18] who also reported aspects of appreciation of life such as not taking things for granted, as well as the importance of living in the present moment.

Clinical implications

The views of VPTG captured in this study have implications for the organisation supporting the staff members working within the specialist cancer centre. Factor 1, '*enriching and exposing to the transience of life.'* highlights similar themes to those in acceptance and commitment therapy (ACT), such as do what matters, appreciation, values, self-compassion, and living in the present moment.[35] ACT is categorised as a third-wave cognitive behavioural therapy (CBT) based on six core therapeutic processes; values, committed action, self as context, diffusion, acceptance and contact with the present moment. All these processes

represent acceptance and mindfulness processes, also commitment and behaviour change processes. ACT is transdiagnostic, therefore it could be helpful in utilising VPTG in staff members and PTG in patients.

The main aspects of ACT which complement the findings of this study include values, cognitive fusion/diffusion and committed action. ACT encourages individuals to engage in behaviours which complement their values for life. Many of the staff positively rated the statement 'working in this field fits well with core values', therefore it could be assumed that an ACT based approach may support staff to pursue their values or reflect on how their everyday work fits with their values for living, possibly incurring more VPTG. Within ACT one of the core processes is to move from cognitive fusion to diffusion, therefore supporting individuals to see the bigger picture, again this is akin to one of VPTG's main themes, appreciation for life. Overall one of ACT's main aims is to increase psychological flexibility, in terms of VPTG, increased psychological flexibility may support the professionals' ability to deliberately ruminate which is a core component of PTG (Taku et al 2009).

Emerging literature has supported the efficacy of ACT in improving professionals' wellbeing.[36] It could be considered that an ACT-based support system for oncology staff may foster more VPTG. ACT also incorporates mindfulness, as a way of 'paying attention in a particular way, on purpose, in the present moment and non-judgementally'. Some evidence suggests that mindfulness-based interventions are effective in improving oncology staff's wellbeing.[37] The implementation of ACT to utilise VPTG may also have secondary effects for the patient and their PTG experience, also the therapeutic relationship between professional and patient.

Overall future research exploring ACT, VPTG and PTG would offer more insight into these recommendations.

A clinical implication for factor 2 *'connection neighbouring disconnection'* could be to bridge the disconnection noticed by some of the staff members. This has already begun with the societal de-stigmatisation of cancer.[38] Other bridges could be formed with services changing to a more community based model as opposed to hospital based one, or staff members having more opportunities to take part in outreach work.

Study limitations

There are several limitations to this study. Firstly, VPTG in terms of its empirical evidence and concepts is still in its infancy, therefore when considering the results of this study, although they will contribute to the evidence base they should be treated with caution, due to the limited evidence and established concepts of VPTG.

When considering the recruitment of staff members for this study the poster used to recruit staff members (see Appendix 9) is biased towards those who have experienced positives from their work. Therefore, the likelihood is that those recruited via poster may have experienced more VPTG. To counterbalance this, during recruitment presentations the researcher encouraged all staff members to take part in the study, whether they believed in VPTG or not.

Due to the nature of Q-methodology studies, large sample sizes are unnecessary. However, the 28 Q-sorts represent a relatively small sample size of mainly females, so generalisability

may be limited, although 77% of the NHS workforce is comprised of females.[39] Only two participants were male therefore actively recruiting males in future VPTG research may identify different perspectives of VPTG.

All 28 Q-sorts were completed via the online platform. Some were completed independently, whereas ten were completed with the lead researcher present. This inconsistency may have resulted in biases including social desirability and acquiescence bias. During the months in which the Q-sorts were completed, staff were also being filmed for a television programme regarding hope which may have subsidised further bias.

Lastly, it may have been beneficial to have captured staff members' religious beliefs and personal trauma histories. Establishing religiosity may have helped interpret the substantial disagreement with spiritual change statements. Whereas personal trauma histories may have given some additional contextual information.

Future research

Discussions regarding the differences between VPTG and PTG are still very much in their infancy, therefore more research would help establish the differences as well as offer more integrity to the field of VPTG. Some researchers have contextualised VPTG as a process, and others as an outcome. Future literature, which establishes a clear theoretically based model of VPTG would be beneficial. Investigating larger samples, including samples working within specific areas would provide additional insights into VPTG, which may also be used to establish a standardised measure of VPTG.

Taking into consideration the clinical implications of this study, future research into the effectiveness of ACT and CBT-based support systems for staff members would be beneficial. It would also be interesting to analyse the relationship between VPTG and standards of patient care. Boorman[40] suggests there is a clear relationship between staff wellbeing and patient wellbeing. Therefore, it could be surmised that if such interventions increase staff members' wellbeing and VPTG scores, the interventions may incur secondary effects such as improving the standard of patient care and patient wellbeing.

In conclusion, oncology staff agreed that they experienced a range of VPTG: specifically, appreciation of life. Additionally, staff noticed an increased awareness to the impermanency of life and closer relationships with family members. Staff expressed strongly that they did not experience any spiritual change from their work. They did however strongly agree that they enjoyed the feeling of helping others.

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Paper Two (b): Empirical Paper

Vicarious Post-Traumatic Growth, A Psychological Sequelae of Working in Oncological Services

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Velindre Cancer Centre

Paper Two (b) has been prepared for submission to Psycho-Oncology
(see Appendix 2 for submission guidelines).

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Abstract

Objective

The diagnosis of a serious health condition such as cancer can result in both post-traumatic stress disorder and post-traumatic growth. There is a growing body of research investigating the positive psychological changes staff experience from viewing the growth of their patients, termed vicarious post-traumatic growth (VPTG). Only one qualitative study has specifically investigated this phenomenon in oncology staff. This study was conducted to quantitatively explore VPTG in professionals working in oncology. Specifically, whether staff demographics and professional's quality of life is associated with VPTG.

Methods

Health professionals were recruited from a specialist cancer centre in the UK and were asked to complete two questionnaires. VPTG was measured using an adapted version of the Post-Traumatic Growth Inventory (PTGI) and the professionals' quality of life with the ProQOL questionnaire.

Results

Overall, a total of 40 health professionals participated. Correlation analysis indicated that staff members with more experience and direct contact with patients reported more VPTG. Higher VPTG scores were also correlated with low levels of burnout, as well as high compassion satisfaction scores. Furthermore, stepwise regression analysis indicated that compassion satisfaction was the only predictor variable of VPTG.

Conclusions

The findings of this study suggest that VPTG is a key protector against burnout, but also that compassion satisfaction is a key predictor of VPTG. With these relationships in consideration, implications for services, clinical practice and future research are discussed.

Keywords

Cancer, vicarious post-traumatic growth, secondary traumatic stress, professionals, oncology, burnout, organisational support, compassion satisfaction.

Background

There is increasing recognition that although working within the NHS can be very rewarding, it can also be physically, emotionally and psychologically demanding.[1] The Welsh NHS Staff Survey[2] results indicated that 33% suffered from work-related stress over the past year incorporating burnout, compassion fatigue or secondary traumatic stress.

Secondary traumatic stress (STS) is closely related to vicarious traumatisation (VT), which is included under the post-traumatic stress disorder (PTSD) criteria presented in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5).[3] The DSM-5 criteria specifics that PTSD can be diagnosed if the individual has experienced '*repeated or extreme exposure to aversive details of the traumatic event*' (p. 271). Therefore, individuals can experience a traumatic event vicariously for it to be deemed PTSD. McCann and Pearlman[4] conceptualised the term VT within constructivist self-development theory (CSDT). CSDT suggests that the construction of an individual's reality is developed by a unique set of cognitive structures, i.e. schemas. Schemas are a person's beliefs, assumptions and expectations of self and the world around them, which enable the individual to make sense of their experiences. Pearlman and Mac Ian[5] describe that responses to a traumatic event reflect a complex interaction between the worker's ability to integrate and to transfer patients' traumatic stories into their own schema. For some, this experience may shatter their schemas, leading them to experience symptoms associated with PTSD such as hyperarousal, hypo-arousal, avoidance, adrenaline addiction and somatic disturbances such as nightmares.[3]

VT has been evidenced in a range of professionals including social workers, ambulance workers, nurses and firefighters.[6,7] Joubert, Hocking and Hampson[8] recruited 16 oncology social workers and assessed them for STS, using the Professional Quality of Life scale (ProQOL-R-IV[9]). Over 50% of the sample experienced fluctuating moderate to strong STS symptoms, supervision was found to be a key protector against STS. Potter et al.[10] recruited 153 oncology nurses, using the ProQOL scale. Overall, compared to the average scores of burnout and STS (obtained from previous studies utilising the ProQOL scale), oncology nurses experienced relatively similar levels of burnout, but greater levels of STS. In the same sample, inpatient nurses reported significantly lower compassion satisfaction than outpatient nurses. More recently Wu, Singh-Carlson, Odell, Reynolds and Su[11] administered the ProQOL with 549 oncology nurses across the USA and Canada. The results echoed those reported by Potter et al.[10] A myriad of factors may contribute to why oncology staff experience VT, including ongoing exposure to loss, treatment complications and severe clinical symptoms, as well as personal senses of failure and ineffectiveness.

Since the birth of the positive psychology movement research has turned towards the positive aspects gained from observing the personal growth of others, adopting the term Vicarious Post-Traumatic Growth (VPTG).[12] Although theoretical models specific to VPTG are still in their infancy, much of the literature indicates that post-traumatic growth (PTG) models are applicable,[13] although it is also worth remembering that there may be subtle differences between PTG and VPTG.[14]

Overall, researchers have contended whether PTG is a process, an outcome, or an illusion (defensive mechanism).[15] The transformational model[16] and the organismic valuing theory

(OVT)[13] are the two most well-known PTG models. Joseph and Linley's OVT[13] (see Figure 1) postulates that we all have an intrinsic motivation towards growth. When a traumatic event is experienced, it firstly shatters a person's assumptions of the world leading to three cognitive processes:

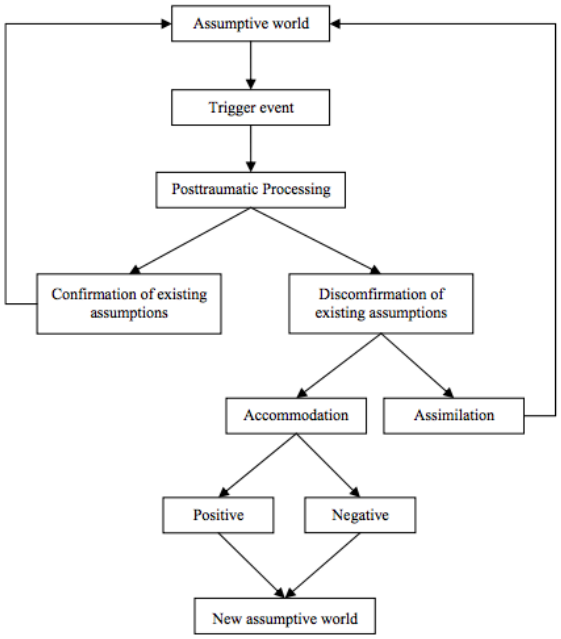
1. Assimilation: returning to pre-trauma baseline, but also leaving the person vulnerable to future re-traumatisation.

2. Accommodation in a negative direction: leading to symptoms of psychological distress such as low mood, anxiety and PTSD.

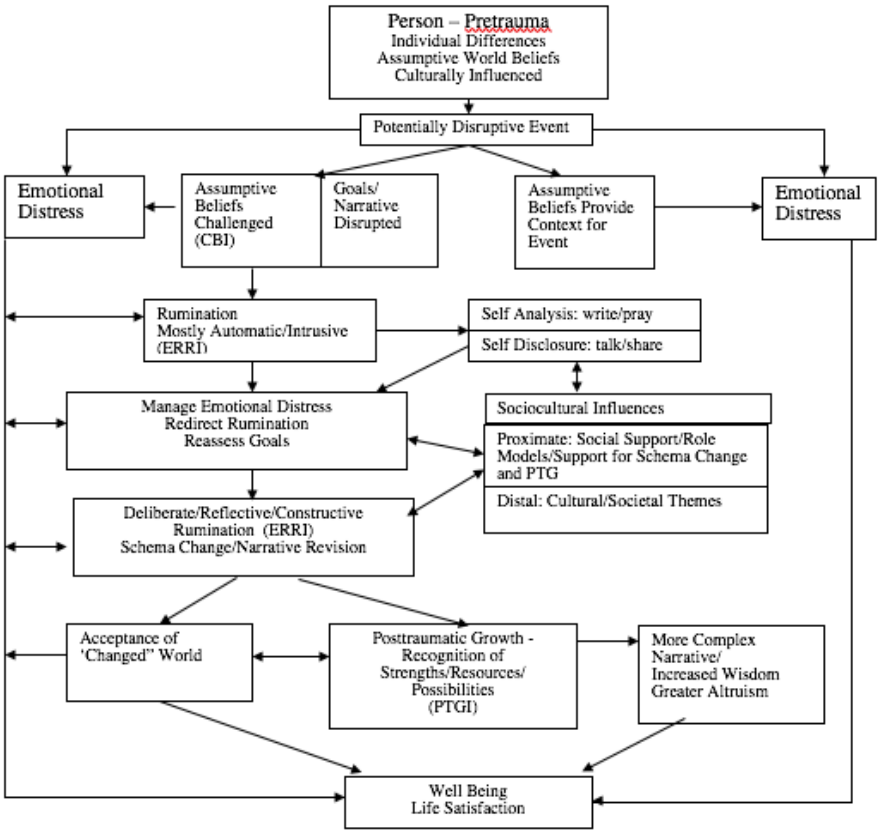
3. Accommodation in a positive direction: leading to growth within three broad areas of functioning (enhanced relationships with others, changes in views about themselves and changes in life philosophies).

Within the transformational model[16] (see Figure 1), many of the processes are like those in OVT such as assimilation and accommodation. However, the transformational model emphasises that rumination and social support are core moderators.

Figure 4. The organismic valuing theory and the transformational model of post-traumatic growth



The organismic valuing theory of growth through adversity. Source (Joseph and Linley, 2008) Permission from Wiley & Sons



A Model of Posttraumatic Growth (based on Calhoun, L.G., Cann, A., & Tedeschi, R.G. (2010). The posttraumatic growth model: Socio-cultural considerations. In T. Weiss & R. Berger, (Eds.), Posttraumatic growth and culturally competent practice: Lessons learned from around the globe. (pp. 1-14).Permission from PTG research group.

Using both quantitative and qualitative methodologies, evidence suggests that professionals experience a range of VPTG within five areas of PTG: appreciation of life, personal strength, relating to others, new possibilities and spiritual change.[17]

Research has explored VPTG and its moderating factors such as personal demographics, social support, coping style and personality with mixed results. Gender was explored by three studies,[18] two of which reported no differences in VPTG scores, whereas Linley and Joseph[19] reported that females experienced more VPTG. Age was explored by four studies. The majority revealed weak positive correlations between age and VPTG.[18] The length of work experience has been explored with mixed results.[18] Overall there is no clear consensus, with suggestions that this may be linked to cultural differences.[20] Interestingly, no studies have compared VPTG scores between those with and without direct patient contact. This would offer some insight into whether VPTG is a result of a direct relationship with someone experiencing PTG, or because of environmental/situational factors. It is hypothesised that a direct relationship would incur more VPTG, as evidence indicates a positive relationship between empathy and VPTG.[21]

The relationship between VPTG and ProQOL has also been explored, with mixed results. Taku[22] reported a statistically significant negative correlation between burnout and VPTG scores. Studies assessing the relationship between STS and VPTG have derived a mixture of results. Some suggest that higher levels of STS incurred higher levels of VPTG, others reported a curvilinear relationship and few reported a negative relationship.[18] No clear consensus regarding the relationship between STS and VPTG remains. With regards to the relationship between VPTG and compassion satisfaction, only one quantitative study has explored this

relationship reporting a positive correlation.[23] Overall, more research is needed to gain a coherent picture of the relationship between VPTG and ProQOL, which is especially important considering the link between staff wellbeing and patient care.[24]

Only one study has investigated VPTG in oncology professionals. Using grounded theory, Vishnevsky et al.[25] found that oncology nurses experienced a range of VPTG, mainly appreciation for life, benevolence and wisdom. No study has specifically investigated VPTG and its moderators in oncology professionals using quantitative methodology. This study will investigate the relationship between VPTG, personal demographics and ProQOL in staff members working in oncology. From the established evidence base, four hypotheses have been developed:

Hypotheses

1. Female oncology professionals who have more experience, direct contact with clients and are older in age will report greater levels of VPTG.

2. High scores of VPTG will be related to low burnout scores.

3. High scores of VPTG will be related to high STS scores.

4. Oncology professionals who report high levels of compassion satisfaction will report high levels of VPTG.

Methods

The study received ethical approval from the cancer centres' research and development department (see Appendix 3) and the department of psychology at Cardiff University (see Appendix 4)

Participants and procedure

Participants were recruited if they were paid employees working within the specialist cancer centre. Recruitment took place between November 2017 and May 2018. Staff members were invited to take part in the study via global emails, posters (see Appendix 5) and departmental presentations. Staff were given the opportunity to complete questionnaires online or on paper. A total of 37 healthcare professionals opted into the study using the hyperlink displayed on the posters and global email. The online platform included the information sheet, the consent form, the demographics form, questionnaires and debrief page (see Appendix 6). They were then asked to complete a Q-sort, as part of a related Q-methodology study.[26] Staff also had the opportunity to leave the study at any point. Ten employees opted to complete the study with the lead researcher present. Completion of the study took, on average, 20 minutes. Three staff members completed a paper-based version and were recruited via opportunity sampling. A total of 44 employees accessed the online platform; however, seven exited the study before entering any data, indicative of an 84% online completion rate.

Measures

Participants were asked to provide demographic information including age, gender, years of experience, profession and whether they have direct contact with patients.

The Post-traumatic Growth Inventory (PTGI)[27]

The PTGI is the most utilised measure for VPTG[28] and was therefore used for this study. The PTGI is a 21-item self-report measure which captures the amount of positive change experienced after a traumatic experience. The PTGI includes five subscales: personal strength, new possibilities, relating to others, appreciation for life and spiritual change. The items are scored on a 6-point Likert scale, ranging from 0 (I did not experience) to 5 (I experienced this change to a very great deal). The total sum of scores ranged between 0 and 105, whereas the domain sum scores are personal strength (0–20), appreciation for life (0–15), relating to others (0–35), new possibilities (0–25) and spiritual change (0–10). Higher scores indicate more positive change. Following previous VPTG studies the PTGI was adapted, asking staff to think about their answers according to their experiences of working within a cancer setting. Tedeschi and Calhoun[27] reported good internal consistency reliability (0.90), and alpha coefficients for the subscales ranged from .67 to .85, see Table 1 for this study's Cronbachs α. Permission to use the PTGI was obtained, see Appendix 7.

The Professional Quality of Life Scale (ProQOL-V)[9]

The ProQOL is a 30-item self-report questionnaire which measures compassion satisfaction, burnout and secondary traumatic stress (STS). The ProQOL asks participants to rate how often they have experienced each situation in the last 30 days on a 5-point Likert scale ranging from 1 (never) to 5 (very often). Reverse scoring is present for some of the items and subscale scores are calculated by adding together individual items. Scores of less than 22 indicate low levels, 23–41 average and scores higher than 42 indicate high levels. The ProQOL is highly utilised in research and has been included in over 100 published papers. Stamm[9] reports the alpha reliability for each subscale as follows: compassion satisfaction α=.88.4, burnout α =.65

and STS α=.81. See Table 1 for this study's Cronbachs α. Permission to use the ProQOL was obtained, see Appendix 8.

Table 1. Descriptive statistics

	VPTG	AL	NP	PS	RO	SC	Burnout	Secondary Traumatic Stress	Compassion Satisfaction
Mean	48.85	9.25	11.50	9.93	16.03	2.00	22.93	21.45	41.05
SD	23.12	4.12	6.03	5.41	8.41	2.46	5.10	5.24	5.39
Range	2-92	0-15	0-22	0-18	0-34	0-10	16-37	12-33	30-49
Cronbach's α	.95	.89	.82	.84	.90	.76	.76	.75	.89

Statistical analysis

The Statistical Package for Social Sciences (SPSS) version 23 was used to analyse the data. Prior to analysis, the data was screened for normality and outliers. All variables were normally distributed therefore, parametric testing was assumed. Independent t-tests were conducted to analyse differences in gender, contact with patients, years of experience (over and under five years) and age (under and over 40 years old). Correlational analysis was performed to determine which variables correlated with VPTG. Regression analysis was used to evaluate which variables predicted VPTG, with statistical significance levels set at $p < .05$.

Results

Staff characteristics

40 professionals took part in this study (see Table 2 for their demographic information). Most were female who worked directly with patients. The majority were either from the

radiography or therapies departments, which includes psychology, dietary, speech and language therapy, occupational therapy also physiotherapy.

Descriptive statistics

Descriptive statistics were calculated for all variables and can be seen in Tables 1 and 2. Overall VPTG scores ranged between 2 and 92, with a total mean VPTG score of 48.85. This score is nearly half of the total mean possible score (105). Therefore, descriptively, the total mean VPTG score could be described as within the average range.

Table 2. Demographic characteristics

Demographic	N	%	Mean	SD	Range
Age (years)			40.58	11.10	24-73
Gender					
Male	4	10			
Female	36	90			
Profession					
Business	2	5			
Education	2	5			
Estates	2	5			
HR	1	2.5			
IM&T	1	2.5			
Manager	2	5			
Medic	1	2.5			
Nurse	5	12.5			
Patient care	2	5			
Pharmacy	2	5			
Project support	1	2.5			
Radiotherapy	4	10			
Radiography	7	17.5			
Research	2	5			
Therapies	6	15			
Experience a VCC (Years)			9.18	9.08	1-34
Direct contact with patients					
Yes	31	77.5			
No	9	22.5			

No professionals scored within the high burnout range, instead the sample was equally split between low (n=20) and average ranges (n=20). The total mean burnout score (22.93) indicates a low level of burnout. Again, no professionals scored within the high range of STS, while 22 of the sample scored within the low range and 18 scored within the average range. The total mean STS score (21.45) indicated low levels of STS. Distinct to burnout and STS, no professionals scored in the low range of compassion satisfaction, 23 scored within the high range and 18 in the average. The total mean compassion satisfaction score signified high levels of compassion satisfaction.

To test Hypothesis 1, independent t-tests investigated the differences in total mean VPTG scores with the categorical variables gender and client contact. The results indicated no significant differences in VPTG scores between females and males. Results did indicate a significant difference in VPTG scores between those with and without direct patient contact t(38), 2.075, p = 0.045, with a Cohen's *d* of 0.656, indicated a medium effect size.[29] Pearson correlation analysis examined the associations between total VPTG scores and staff members' age and years of experience (see Table 3). Firstly, the data was assessed via scatterplot graphs to test for a normal distribution. The plot confirmed that the distribution appeared normal, therefore a one-tailed Pearson correlational analysis was conducted, which indicated no statistically significant correlations between the variables age, years' experience and total VPTG scores. A positive, statistically significant correlation between age and the VPTG domain of spiritual change was found, indicating that older participants reported more spiritual change.

Table 3. Correlation matrix

Variables	1	2	3	4	5	6	7	8	9	10
1. Age										
2. Experience	.555**									
3. VPTG	.226	.100								
4. AL	.075	.071	.823**							
5. NP	.229	.118	.949**	.747**						
6. PS	.099	.067	.884**	.725**	.798**					
7. RO	.264	.107	.952**	.706**	.881**	.788**				
8. SC	.317*	.045	.537**	.271*	.505**	.291*	.491**			
9. Burnout	-.435**	-.267*	-.340*	-.270*	-.269*	-.424**	-.323*	-.121		
10. ST	-.302*	-.082	-.056	-.078	-.011	-.211	-.041	.223	.535**	
11. CS	.183	.181	.352*	.374*	.286*	.408**	.315*	.093	-.764**	-.249

**. Correlation is significant at the 0.01 level (1-tailed)
*. Correlation is significant at the 0.05 level (1-tailed)

Appreciation for life (AL), New possibilities (NP), Personal strength (PS), Relating to others (RO), Spiritual change (SC), Secondary trauma (ST), Compassion satisfaction (CS),

To test Hypothesis 2, Pearson correlation analysis was conducted to determine whether there was an association between the total mean VPTG score and total mean burnout score (see Table 3). Results indicated a negative correlation (r = -.340, p .016) of medium effect size (Cohen, 1988). A review of the scatterplot graphs showed that higher scores of VPTG incurred lower levels of burnout. Further analysis indicated significant negative correlations of medium–large effect sizes between burnout and all the VPTG domains, apart from spiritual change. Additional correlational analysis indicated significant negative correlations between total mean burnout score and age (r = -.435, p=.002) also years of experience (r = -.267, p=.048). These results imply that older staff, and those with more experience, reported lower levels of burnout.

To test Hypothesis 3, Pearson correlation analysis was conducted to determine whether there is an association between total mean VPTG and STS scores. The results indicated no significant

associations (see Table 3). A significant negative correlation, of a medium effect size was detected between total mean STS score and age (r = -.302, p = .029). After reviewing the scatterplot, these results suggest that older employees reported experiencing less STS.

To test Hypothesis 4, Pearson correlation analysis revealed a significant positive correlation between total mean compassion satisfaction score and total mean VPTG score (r = .352, p = .013), see Table 3. This indicates that those who experienced higher levels of compassion satisfaction also reported higher levels of VPTG. Positive correlations were found between total mean compassion satisfaction scores and all the VPTG domains apart from spiritual change. These were all of a medium effect size according to Cohen.[29]

Regression analysis

Exploratory multiple regression analysis was conducted to identify which variables are predictors of VPTG. Results of the multiple regression indicated that there was no collective effect of the independent variables. Using exploratory stepwise regression analysis, individual predictors of VPTG were investigated further. Results indicated that compassion satisfaction was the only significant predictor of VPTG (t = 2.318, p = .026), with a calculated medium effect size (f^2 = 0.1415), according to Cohen.[29]

Discussion

This study aimed to explore the effect of individual differences on VPTG, as well as the relationship between ProQOL and VPTG, in health professionals working in a specialist cancer centre.

The first hypothesis explored staff demographics and predicted that older females with more years' experience and direct contact with patients will report higher levels of VPTG. T-test analysis revealed no significant differences in VPTG mean scores between females and males, matching similar results of other VPTG studies.[18] Previous VPTG studies have indicated that older people experience more VPTG;[33] however, this was not support by the results of this study which found no significant correlation between VPTG scores and age, nor VPTG scores and years' experience. T-test analysis revealed significant differences in VPTG scores between those who had direct contact with patients and those who didn't. This supports the results of Cohen and Collens[31] meta-synthesis, who noted that only those who directly witnessed their patients' PTG experienced VPTG.[32]

The second hypothesis – that high VPTG scores would relate to low burnout scores – was supported by a statistically significant negative correlation. This supports previous results by Taku.[22] In relation to the OVT[13] and the PTG transformational model[16] this result suggests that staff may have gone through the processes of assimilation and accommodation. Having now reached a point of acceptance with a newly formed assumptive world. This is also supported by the significant difference in VPTG scores between those with over five years' experience compared to those with less.

The third hypothesis proposed that high VPTG scores would relate to high STS scores. This was not supported, as no significant correlations between the two variables were found. From reviewing the data, the reason for this is probably because none of the staff reported high levels of STS. It is possible that the cancer centre is a supportive environment and organisation

who attend to their employees, or perhaps the work entails little exposure to traumatic events.

The last hypothesis was fully supported. Correlational analysis indicated a statistically significant positive correlation between total mean VPTG scores and total mean compassion satisfaction scores. This supports previous findings by Frey et al.[23] Additionally, regression analysis revealed compassion satisfaction as the only predictor variable of VPTG scores, accounting for 12.4% of the variance. These results may be a consequence of the ambiguity in differentiating between the terms VPTG and compassion satisfaction, or they may represent that when working in oncological services staff acquire feelings of gratification and pleasure, as well as positive changes in self-perception, interpersonal relationships and overall outlook on life, as discovered in Mills, Johnson and Hare.[26]

Clinical implications

Since the recommendations of both the Francis and Andrews reports[34,35], service innovations have been developed with the aim of increasing compassion satisfaction and empathy in staff teams. Schwartz Rounds[‡] are multidisciplinary forums for staff to meet and reflect on the emotional and social aspects of their jobs.[36] Therefore the facilitation of a Schwartz round could potentially increase staffs rumination regarding their work experiences, which as noted in the PTG transformational model[16] is a key component of VPTG, consequently increasing experiences of VPTG.

[‡] Initially developed by Ken Schwartz in 1994 who also established the Schwartz Centre for Compassionate Care in Boston, USA. Schwartz Rounds were adopted in the UK in 2009 and continue to be implemented by the Point of Care Foundation.

So far, evidence suggests that Schwartz Rounds have a positive impact on teamwork and increase feelings of compassion towards patients and colleagues.[37] Future research linking the experience of Schwartz Rounds to VPTG would help decipher the relationship between compassion satisfaction and VPTG.

Within everyday practice, VPTG could be acknowledged within supervision or line management. To foster VPTG in the workplace, supervisors may first of all need psychoeducation of VPTG, including teaching of skills in identifying and nurturing VPTG in supervisees.[38] Within organisational cultures, there appears to be a high emphasis on burnout and work-related stress, but not VPTG. Early psychoeducation in introductory training may help in shifting this paradigm. In addition, an overall facilitation of an environment that supports the development of VPTG into clinical and organisational procedures may 'enhance the emotional wellbeing'[39] of employees. Strategies raising awareness of VPTG may indirectly offer positive effects for both professionals' and patients' wellbeing, especially considering the links between employees' wellbeing and patient experience, as described in the Boorman.[24]

Future research

Research in VPTG is still in its infancy and more research is needed to gain clarity of the concept and its moderators. The findings of this study suggest VPTG is related to burnout and compassion satisfaction. No relationship between STS and VPTG scores was found, which is maybe a consequence of the low STS scores. More research into oncology professional's experiences of STS might offer more insight.

Considering the clinical implications, future research in interventions aimed at promoting VPTG within the NHS would be advantageous. Randomised control trials of staff support programmes utilising Schwartz Rounds within oncology services, would offer a better understanding into how compassion and VPTG in staff teams is developed. This could also be linked to further outcomes such as patient care, staff retention and staff wellbeing.

Another interesting area of future research to explore would be the relationship between direct PTG and VPTG. No studies have explored this relationship fully. It would be interesting to measure patients' PTG and map it to the VPTG of the staff member who supported the patient. Additionally, this would allow for more insight into the process which transfers PTG.

Study Limitations

Several limitations should be considered when interpreting the results of this study. Firstly, there were many IT issues. After the online questionnaires were developed, it took some time for them to be made available to staff. Once resolved, it was discovered that the online questionnaires were restricted to desktop computers only. Therefore, those using laptops struggled to access the study. This greatly affected the response rate, leading to a smaller sample size. Attempts were made to resolve this by presenting the study at departmental meetings, in which staff were given the hyperlink and encouraged to contact the lead researcher if they wanted to take part in the study.

The selection of the measures used was based on those used in previous studies. Both measures have the possibility of incurring biases. The PTGI has been noted to incur bias such as recall, regency, illusion, social desirability and acquiescence.[28] Frey et al.[23] used the

balanced inventory of desirable responding (BIDR)[40] to account for this, this may have been an appropriate additional measure to use. Another area in which bias may have affected the results of this study include the recruitment poster (Appendix 9). On reflection the recruitment poster was worded to encourage only staff members who had experienced positives from their work, more subjective wording may have incurred a less biased sample of participants. To counteract this recruitment presentations were worded to encourage all staff members to complete the Q-sort and questionnaires, no matter whether they believed in VPTG or not.

Finally, it should be acknowledged that during the period in which the questionnaires were completed, the cancer centre was also under consultation and planning for a new hospital site. This understandably has created a lot of uncertainty and therefore, may have influenced the staff's views of working at the cancer centre.

In conclusion, 40 healthcare professionals working in a cancer specialist centre took part in this study to explore the relationship between VPTG and ProQOL. The results indicated that the sample rated themselves within the low range for burnout and STS, average range for VPTG and high range for compassion satisfaction. The demographics of direct contact with patients and years of experience accounted for more VPTG. Results also indicated that VPTG may be a protector against burnout, and that compassion satisfaction may predict VPTG. To gain a better understanding of these relationships, more research is needed. It should also be noted that due to the infancy of VPTG as both a concept and its underpinning empirical evidence, the results of this study should be carefully interpreted but remain a good addition to the emerging VPTG evidence base.

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Paper Three: Critical Reflections

Paper three is not intended for publication.

Paper three will critically reflect on parts of the research process underpinning the previous papers. Future research, clinical implications and a dissemination of results strategy will also be presented.

Word Count: 8899
(excluding references, tables and figures)

Introduction

This paper has been prepared in collaboration with the requirements of a doctoral training course in clinical psychology to submit three papers, one of which critically appraises the research presented in the accompanying papers. The appraisal will focus on the strengths and weakness of the systematic review and empirical papers, as well as clinical implications. This paper will conclude with a dissemination of results plan, also reflections on how this research has supported my personal and professional development on the journey towards qualifying as a clinical psychologist.

Paper 1 – Vicarious Post-Traumatic Growth in Health Professionals: A Systematic Review

Target journal

The *British Journal of Health Psychology* (*BJHP*) was picked as the target journal for the systematic review for three reasons. Firstly, from reviewing the articles published in the *BJHP* many matched the themes of the systematic review, specifically post-traumatic growth (PTG) and health professionals' views of working in health settings. Secondly, from reviewing the *BJHP*'s aims and scope, it felt that the systematic review would complement these. Lastly, the *BJHP*'s impact factor of 2.551 means that if the review were to be published, it stands a good chance of being accessed by those working in health settings. The *BJHP*'s author guidelines can be seen in Appendix 1. The 5000-word limit has proven challenging, considering the vast number of variables explored in the 18 studies included in the systematic review.

Rationale for topic – PTG

Since working in a range of clinical settings both prior to and during my doctoral training, I have always wondered why it is that some individuals after experiencing a significant event in their lives go on to experience psychological distress, whereas others go on to experience psychological growth? For me, this resonates with the subjective experience of trauma, suggesting that one person's perception of a traumatic event is unlike anyone else's. Having worked with young people experiencing psychosis, I believed that a first episode of psychosis (FEP) could be perceived as traumatic and have mused over how some people have thrived and grown from their experience whereas others have continued to live with a range of psychological distress. These ponderings led me to PTG after FEP, which was my initial thesis theme.

After a preliminary literature search, only a scoping review by Jordan, Pope, Lambrou, Malla, and Iyer (2017) revealed 14 studies that qualitatively explore PTG and FEP. No systematic reviews exploring quantitative studies were found and to fill this gap in the literature, a review of this type was proposed.

Prior to commencing the system review, I sourced a field supervisor who worked in an adult mental health rehabilitation and recovery service, as well as a research supervisor who was part of the doctorate programme team. I then began to develop a research protocol for my empirical and systematic review papers. After months of discussions regarding the practicability of recruiting young adults in recovery of FEP, I took the decision to change the thesis theme for several reasons. Firstly, I had contacted a previous trainee who had also attempted to recruit similar participants and they informed me that they had recruited a total

of eight participants. This had been a difficult process as the opportunity to recruit participants had been restricted to those who were within six months of recovery. I also met with the lead nurse for an FEP specialist service and they explained that most of their patients, once in recovery, no longer want contact with services, therefore, once discharged, it can be very difficult to contact them; additionally, the NHS ethics committees disapprove of the recruitment of patients after discharge. Taking these into consideration, it was decided to think of another thesis subject.

Rationale for topic – Vicarious PTG

Since my initial research proposal had dissolved and I still maintained a great interest in PTG, I began to think about it in relation to my other placements and instantly my older adult placement at the Velindre Cancer Centre (VCC) came to mind. On reflection, this placement rewarded me with an insight into the strength and resilience of not only patients but also staff members. This leads me to question whether the staff members were experiencing PTG themselves. After an exploratory literature review, I found a large body of research on PTG in those who have experienced cancer, but little on vicarious PTG (VPTG) in oncology staff. Therefore, after some discussion with my older adult placement supervisor, the theme of VPTG in oncology staff appeared to be a realistic study. From the initial exploration of the literature, a systematic review of VPTG in oncology staff would have been incredibly small, therefore, it was decided to extend the theme to health professionals. Although it is acknowledged that the systematic review could have been conducted with the theme of FEP and PTG (as the empirical and systematic review paper topics do not have to be on the same topic) it was decided to keep them similar to set some context for the empirical papers.

Three systematic reviews exploring VPTG in health professionals were found published in peer review journals. Cohen and Collens (2013) review explored qualitative studies, whereas Manning-Jones, de Terte, and Stephens' (2015) review focused on both quantitative and qualitative studies. Bartoskova (2015) concentrated on VPTG in therapists, finding only four papers. Only Cohen and Collens (2013) reviewed the studies' quality using guidelines by Atkins et al. (2008), therefore, no previous systematic review had incorporated assessing the quality of the research using a structured quality assessment measure. For this reason, it was decided to conduct the systematic review of quantitative studies including the subject of VPTG in health professionals.

Search terms

The search terms used were determined by a review of the complimentary literature. I also met with a librarian who facilitated a systematic review lesson for the doctorate course; they kindly offered guidance and support with the systematic review process, which I found invaluable, as I had never completed a systematic review before. The librarian and I met and discussed appropriate search terms and she also alerted me to other databases in which she felt I may find more articles, for example, the British Nursing Index. Developing the search terms was a difficult task. The term 'PTG' encompasses many aspects including appreciation for life, personal growth, wisdom, and adversarial growth to name a few. This may reflect the infancy of VPTG and its under-developed theoretical models. It was also important to capture all the terms relating to health professionals and on reflection, a saturation point was reached. The librarian's guidance helped establish an inclusive and exhaustive search term list (see Paper 1, Table 1). In hindsight, search terms of the different measures of PTG such as the stress-related growth scale (Park, Cohen, & Murch, 1996), the silver lining questionnaire

(Sodergren & Hyland, 2000), and the psychological wellbeing post-traumatic changes questionnaire (Joseph et al., 2012) may have facilitated a more comprehensive search.

Inclusion-exclusion criteria

The inclusion-exclusion criteria were important in aiding the management of the large number of studies retrieved from the searches. No exclusion criterion was set for the publication date. This enabled papers prior to the formation of the term VPTG, by Arnold, Calhoun, Tedeschi, and Cann (2005), to be included.

One of the main inclusion criteria was for participants to be health professionals, therefore, studies that included social workers, police, and firefighters were excluded. This decision was made for two reasons, firstly, if the exclusion criterion had not been set, approximately 13 studies would have also been included, increasing the systematic review beyond the researcher's capacity. Secondly, using social workers as an example, they work within a very different system to the NHS, therefore, it was decided to concentrate on those working within health settings, as they work within similar protocols, procedures, and support systems and they may also have similar workplace experiences.

Another main inclusion criterion was that of quantitative studies, however, if a mixed method design study enabled the separation of the quantitative results from the qualitative, it was included in the review. Grey literature studies were excluded from the review. This was to ensure that all publications had been through the peer review process. However, it is acknowledged that several good quality theses have explored VPTG. This highlights the importance of disseminating research findings.

Overall, it is acknowledged that the use of inclusion and exclusion criteria may result in certain populations and literature not being considered. Systematic reviews inclusive of all professionals in the future could provide additional support to the evidence base of VPTG.

Reviewing the articles (1,632 Down to 18)

At first, duplicates were deleted then titles and abstracts reviewed; 77 full-text articles were screened. This process was more time consuming than initially thought and included the development of analytical skills.

Great consideration was given to whether the study was capturing VPTG or PTG. No specific measure of VPTG has been developed yet, therefore, most of the studies adapted the instructions of the post-traumatic growth inventory (PTGI; Tedeschi & Calhoun, 1996) to guide the participant in reflecting on their answers in relation to their work, as opposed to their direct experience. Careful attention was taken to ascertain which studies had adapted the PTGI and studies which did not specify whether they had made any adaptions were excluded from the review.

From reviewing the 77 articles, it also became apparent that many had been written by the same authors, therefore, a careful examination of the studies was used to establish whether the papers facilitated the same data with different analysis or represented a new data set.

Synthesising the data

The initial decision to conduct a systematic review of quantitative data included plans to synthesise the findings as a meta-analysis. This was initially thought feasible considering that

most of the studies used the PTGI and reported total mean scores for the sample. Using the software, Comprehensive Meta-Analysis, results indicated substantial heterogeneity, therefore, in accordance with Cochrane guidelines (Ryan, 2016) pooling of these results into a single summary result may be misleading. Therefore, a narrative synthesis was deemed more appropriate. Guidance on conducting a narrative synthesis was consulted (Popay et al., 2006) with thematic analysis described as a common technique. After considering the studies of the review, a thematic analysis felt appropriate to present the wide range of variables and their relationships with VPTG in a meaningful manner. The synthesising of the data into an Excel spreadsheet, prior to thematic analysis, supported me in gaining structure and helped me feel that the process was reliable and robust. From this, I was able to group the results into themes under the two categories of personal and organisational factors. At times it felt difficult to organise the vast amount of data and without the assistance of the Excel spreadsheet, it would have been incredibly difficult.

Quality assessment measure

Within systematic reviews, it is becoming common practice to incorporate a quality assessment tool (Centre for Reviews and Dissemination, 2009), although it is acknowledged that there are limitations to the use of quality assessment measures (Katrak, Bialocerkowski, Massy-Westropp, Kumar, & Grimmer, 2004); they do help organise critique and provide the reader with additional assistance. Although, it was decided to incorporate a quality tool it was not relied on solely as an indicator of quality.

Of the 18 studies included in the review, two were of mixed methodology. At first, I considered a new quality checklist for cross-sectional studies named AXIS (Downes, Brennan,

Williams, & Dean, 2016). On review, AXIS has yet to be validated, therefore, after consultation with my research supervisor, the Quality Assessment Tool for Diverse Designs (QATSDD; Sirriyeh, Lawton, Gardner, & Armitage, 2012) was selected. The QATSDD covers a range of designs, therefore, it felt more appropriate for this review as it takes into consideration the two mixed method design studies. The QATSDD has been used in previous reviews and demonstrates adequate reliability (Medford, Hare, & Wittkowski, 2017). Most of the studies received a QATSDD score within the poor to moderate quality range. This was representative of no studies evidencing service user involvement in the design, also, hardly any presented evidence of sample size consideration or a rationale for the choice of data collection tool.

To ensure bias in the quality assessment ratings was minimised, an independent assessor reviewed four randomly selected papers. Four papers represent 22% of the papers included in this study. This seemed a fair amount of papers without causing the independent assessor too much of a burden and it also fits with recommendations from the National Institute for Health and Care Excellence (NICE) guidelines (NICE, 2017). Although a kappa statistic could have been calculated, it was decided against as only four papers were assessed by both myself and the second assessor.

Limitations

A major limitation to a narrative synthesis is that it is only as good as the data provided. All the studies in this review were within the poor-moderate quality range according to the QATSDD and all explored a range of variables in different settings, limiting the generalisability. Many of the studies did not report data sufficient to calculate effect sizes, potentially raising the risk of bias in this review. Using the studies' correspondence details, I emailed three of

the authors and was able to obtain the total mean scores and some additional data to calculate effect sizes.

In retrospect, the low quality of studies and lack of generalisability may be a consequence of a wide review question as well as the under-developed theoretical framework underpinning VPTG. It must finally be noted that although all reasonable efforts were made to gather all the relevant studies, due to the overlapping terms used for VPTG and the inconsistencies of reporting whether VPTG or direct PTG was captured, some may have been missed.

Strengths

The major strength of this review is that it is the first to explore VPTG in health professionals using a quality assessment tool (QATSDD). The conclusions considered methodological weaknesses and strengths, also several variables and their relationship with VPTG. Not only does this review highlight the need for a standardised VPTG measure, it also exposes the need for better quality research in this area.

Conclusion

This review provides a comprehensive understanding of the current literature pertaining to VPTG in health professionals. Although not deemed appropriate for this review, a meta-analysis in this area in the future may offer more clarity. It may also be helpful for future reviews to consider using the same quality assessment tool, however, this may be difficult if the review is specific to a certain methodology.

Overall, the process of completing this review has provided me with insight into the time and resources needed to complete a detailed review as well as an opportunity to develop skills and knowledge not only in the process of completing a systematic review but also meta-synthesis. It has also given me a foundation of knowledge in VPTG and its concerning themes. The process has felt difficult at times, firstly as I have never completed a systematic review before and secondly due to the volume and inconsistent quality of data. The main support systems that helped me through these difficulties included meeting with the librarian, monthly research meetings, and a review of previous systematic reviews.

Empirical papers – 2a and 2b

Target journal for empirical papers

The target journal for this paper is *Psycho-Oncology*. *Psycho-Oncology* has an impact factor of 3.095, therefore, a significant audience may access the papers (if published), increasing the likelihood of future research in this area and clinical implications. Also, from reviewing *Psycho-Oncology*, the theme of PTG has been published on previously, therefore, it appears that the topic of the empirical papers fit with the journal's aims and scope. *Psycho-Oncology*'s author guidelines can be seen in Appendix 2. The difficulty with *Psycho-Oncology* included the word limit (4000) and the limitation of only 40 references; this was the main reason the empirical part of this thesis was split into two papers. Another difficulty was the referencing style Vancouver, which I had never used. Interestingly I preferred referencing in Vancouver compared to APA style, on reflection I feel it increases the reading flow.

Admittedly, all three papers could have been submitted to the *British Journal of Health Psychology*, however, it was decided an oncology-specific journal would be more appropriate for the empirical papers. A Q-methodology specific journal (e.g. operant subjectivity) could have been selected, however, it was decided to aim for a journal with a greater impact factor to allow Q-methodology studies greater exposure.

Rationale for empirical paper topic

As previously stated, the rationale for choosing VPTG in health professionals, specifically oncology professionals, came about from my time during my older adult placement. Prior to beginning my placement, I was curious regarding working with patients that have life-limiting diagnoses. I noticed many assumptions mainly about staff members experiencing burnout; this was quickly disproved. In fact, staff were extremely warm, compassionate, and displayed close connections with each other. I wondered what was driving this. Was it resilience (the belief that difficulties can be overcome) or are staff members experiencing VPTG?

Tedeschi (2011) challenges the misconception that those who experience PTG must be resilient by emphasising that resilient individuals are less likely to experience growth as their ability to cope may incur less shattering of their schemas. Considering this, I was mindful that the two concepts are separate but also interrelated (Taku, 2014). From a preliminary literature review, an abundance of literature was found on resilience in health professionals (Arrogante & Aparicio-Zaldivar, 2017) but very little on VPTG. Therefore, it was decided to explore oncology professionals' experience of VPTG.

A catch-crop paper

On beginning to write up this study, it quickly became apparent that in order to adhere to the 4000-word limit of the target journal *Psycho*-Oncology, much of the quality and data of the Q-methodology study would need to be sacrificed. Therefore, it was decided to split the empirical part of the thesis into two papers, one concentrating on the Q-methodology approach and the other on the quantitative data. An advantage of completing two articles is that there is a greater chance of reaching the target audience. Throughout this process, it felt important to establish a balance of the two papers complimenting each other but also being different enough to retain the readers' interest. On reflection with my research supervisor, although the second paper may appear to be a 'catch-crop' or 'bonus' paper, it is thought that it will be a worthy contribution to the VPTG evidence base.

Ethical approval for empirical papers

From my previous research experience, I developed some understanding in gaining ethical approval through the NHS Integrated Research Application System, therefore, I have some knowledge that this process can at times be lengthy, also, the importance of completing the correct forms on both a local and national level. I initially thought that the same process would be applicable for this study, however, after consultation with a research governance and quality assurance officer of Velindre research and development department, they felt that the study would fit the criteria of service evaluation. After consultation with my research supervisor, it was advised that this would be appropriate as the project fits the remit for research from the perspective of the doctorate. Therefore, the appropriate forms provided by the research and development department were completed and ethical approval granted (see Appendix 3). Ethical approval and sponsorship was also sought from Cardiff University,

psychethics (see Appendix 4); this included completion of a risk assessment. One request from psychethics included a support group for participants, this was discussed with my research supervisor and the signposting of support available to participants was deemed appropriate to fulfil this request. Both processes were started early on in the research process to allocate enough time if revisions needed to be made; this was a major advantage and allowed data collection to start sooner rather than later.

Paper 2a – Vicarious Post-Traumatic Growth in oncology staff, A Q-Methodology study

Why Q-Methodology?

From conducting a systematic review of quantitative studies, it was discovered that several studies had used qualitative approaches to explore VPTG in health professionals. For this reason, it felt important in my empirical papers to strike a balance between qualitative and quantitative approaches in order to capture a rich array of VPTG data.

The possibility of conducting a Q-methodology piece of research was first raised by my research supervisor, therefore, after some investigation of the quanti-qualitative methodology (Watts & Stenner, 2012), the decision was made to conduct a Q-methodology-based study for several reasons. First, compared to quantitative approaches, Q-methodology does not require a large sample; this is an advantage due to the unpredictability of response rates. It is also said to be more robust with less missing data and fewer uncertain responses (Cross, 2004). Second, the Q-method allows participants to share and explore their views in a less invasive manner than an interview. The Q-sorting process encourages participants to

have an active role, therefore, compared with surveys, interviews, and focus groups, participants have the freedom to understand the statements from their subjective viewpoints rather than be confined by a survey or scale. Overall, the main reason the Q-method was used in this study was because it provides richer data in a clearly structured, replicable, and more rigorous analytical framework (Davis & Michelle, 2011).

Although Q-methodology has not been used with PTG research previously, it has been used to elicit staff members' attitudes (Westbrook, McIntosh, Sheldrick, Surr, & Hare, 2013) and it has also been recommended in NICE guidelines (NICE, 2004) to elicit staff attitudes.

One of the main focuses of Q-methodology is on different views, therefore, Q-methodology gives an opportunity to explore viewpoints on emerging topics such as VPTG, as well as unique viewpoints of VPTG. Enabling the discovery of all views was important as only one previous study had interviewed oncology staff regarding their VPTG experiences (Vishnevsky, Quinlan, Kilmer, Cann, & Danhauer, 2015). Overall, the rationale for the use of Q-methodology is that it appears to have more strengths than typical survey and interview-based approaches.

Free or forced choice distribution

Within Q-methodology there is a debate as to whether participants are given 'forced or free choice' (Watts & Stenner, 2012, p. 77). Forced choice requires participants to sort every statement, even those they may not normally have an opinion about. Free choice gives participants the opportunity to sort any number of the statements they deem appropriate. Most Q studies use forced choice as it is easier to interpret whilst also being no more restrictive than the free distribution (Watts & Stenner, 2005). For these reasons and due to

the difficulty in adopting free choice to an online Q-sort, I decided to use forced choice for this study. When observing professionals completing the study, some notably became frustrated at having to choose one statement over another, some also noted that they had no opinion about certain statements and this deliberation, I feel, reflects the active role professionals took in taking part in the sorting and, therefore, reflects the collection of robust subjective viewpoints.

Why not use repertory grid?

Repertory grid methodology (Kelly, 1955) is somewhat like the Q-methodology in its underlying philosophies and applications, also in its main aim to elicit subjectivities. There are a few differences between the two that informed the decision to use Q-methodology for this study. Compared to Q-methodology, the repertory grid employs a more elaborate process of eliciting participants' constructs, which can be more time-consuming. For staff members of VCC, if repertory grids were used, a lot more of their time would have been necessary, therefore, this may have resulted in fewer participants willing to take part.

Within Q-methodology, participants are given a set of statements that have been developed by the researcher. Some suggest this may introduce new constructs or miss personal constructs, whilst the repertory grid allows for greater exploration, however, with less structure. It was felt as the Q-methodology is a new concept for staff members, they may feel more comfortable with a methodology that offers more structure.

Regarding the analysis, the repertory grid generates individual cognitive maps whereas Q-methodology combines correlational matrices and analyses these in collect group statements

based on commonalities. One of the main aims of this study was to capture the staff groups collective opinion of VPTG, therefore, Q-methodology was deemed more appropriate. If the aim was to collect individual viewpoints, then repertory grids would have been used.

Conducting the focus group

Recruitment for the focus group was conducted via a global email. Staff members were made aware of the research topic and provided with two dates, where to attend, and what time. Staff were encouraged to RSVP; a total of ten professionals expressed an interest in attending, a total of seven attended the first focus group, and none attended the second. A lot of preliminary work took place in securing a room, which we were subsequently moved out of at the last minute. A staff member informed me that they would direct attendees to the new room, however, this may have contributed to the small number of attendees.

The themes for discussion in the focus group matched the developing Q-sort for consistency, however, as facilitator, I was aware of keeping the discussion open in case new themes emerged. The focus group discussion was recorded via a dictaphone; I later listened to the recording and reviewed whether any VPTG themes emerged. On reflection, it may have been beneficial to have recruited an independent person to review the recording as this may have supported any potential researcher biases.

Developing the Q-set

The initial stage of Q-methodology includes devising a concourse that represents an array of beliefs, opinions, and descriptions of VPTG, which are then extrapolated to form the Q-set (Watts & Stenner, 2012). The process of collecting information to develop the concourse was

time-consuming and at times it felt like I was wading through a maze of data that was collected from various resources including peer-reviewed papers, past theses, news articles, online forums, memes, and a focus group. Reflecting on this time, it was incredibly important to organise the information into themes and topics; this allowed the Q-set statements to be developed more easily. The Q-set was then reviewed by my supervisors, who agreed that a saturation point had been reached.

Piloting the online Q-sort

In collaboration with an eLearning technologist from Manchester University, we were able to develop an online platform for staff members to access and complete the Q-sort and self-reporting measures of the quantitative study. The first version of this included the 77 Q-sort statements (six themes) and five outcome measures. This was then piloted by an assistant and trainee clinical psychologist who both reported that the time to complete the study was too long, also that some of the statements overlapped. On review, the statements were reduced to a more manageable 36, with the six themes remaining. This process was incredibly difficult as I wanted to keep the same themes. I also felt some of the statements were important to keep, therefore, some of the similar statements were grouped together, whereas others, which felt more repetitive, were removed. I also reviewed the measures and it was decided to decrease these to just two relatively short measures, the Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) and Professional Quality of Life Questionnaire (ProQoL; Stamm, 2010). This was then communicated with the eLearning technologist who kindly redeveloped the online platform. Screenshots of the online platform can be seen in Appendix 6. Overall, this process took a long time and at points, I considered

changing to a paper-based system, which, in the long term, would have been more time-consuming.

Recruitment

The participants recruited for this study were professionals working within VCC. During the design phase, consideration was given to include volunteers. After some discussion with my supervisors, it was highlighted that volunteers may have different motives and workplace experiences than employees, also that the recruitment of volunteers includes much more ethical considerations, therefore, it was decided not to include volunteers within this study, however, it would be a very interesting piece of research in the future.

Staff members were invited to take part in the study by multiple means including global email invitations that included a hyperlink to the online platform, posters, reminder cards, and presentations at departmental meetings. Permission to send global email invitations was obtained from my field supervisor, who contacted the senior management team. The use of global emails in recruitment may have been hindered by filters. It may have also been the case that many were on annual leave, therefore, on return to work, due to the high volume of emails, all the non-essential emails such as global emails may have been quickly scanned and deleted.

Initially, staff appeared very interested in the research, with high numbers initially accessing the online platform. Unfortunately, this began to dwindle during the Christmas holidays, therefore, more presentations and posters were provided in the new year. From my placement experience, I was acutely aware of most departments within VCC being extremely

busy, therefore, I felt aware that some professionals may feel that the study is an additional burden, possibly eliciting some contempt that it is additional work. Staff were made aware that the hyperlink for the project would also work at home if they wished to take part outside of work. The majority completed the questionnaires and Q-sort during work time, however, I was extremely mindful that my research was by no means a priority for staff. I frequently experienced feelings of disappointment and frustration with the uncertainty of whether staff would take part in the study, although the majority had agreed to after watching the presentation at departmental meetings.

A strategy sometimes used as an incentive to recruitment is the offer of a prize. In hindsight, some of my research budget could have been used to bolster recruitment with the offer of a voucher as a prize for taking part, however, this also leaves me with uncomfortable feelings of coercion. It is also acknowledged that my own limited flexibility with time, due to demands and commitments from my clinical placement, may have factored into the recruitment of participants. Overall, this experience has given me an insight into the challenges of recruitment for research.

Q-sort administration

Most of the Q-sorts were obtained from staff members independently accessing the online platform and completing the sort with guidance on the online forms. It may be a limitation that I was not present for every Q-sort, however, it is thought that the online instructions and help options provided enough guidance for participants to reliably complete the sort. Participants were also given the opportunity to book a session with me to complete the Q-sort together. A few staff members opted for this and a convenient date and time for both of

us was arranged. I took great care within these sessions to not influence the staff members' point of view and acted very much as 'IT support' with regards to gaining access to the Q-sort and supporting professionals to move the statements into the appropriate boxes.

At times, the Q-sort appeared quite small on the screen, therefore, it was sometimes awkward to move the statements into their allocated boxes. I wondered whether a paper-based Q-sort would have been more reliable, however, it would have been difficult to gain the appropriate room and space to conduct paper-based Q-sorts.

From observing the Q-sorts being completed, at first some participants struggled with the process, they became frustrated with the forced choice and due to the number of statements, they amended the final Q-sort several times before informing me they were happy. These observations gave me some insight into how engaged participants were when sorting and made me feel more confident that their subjective views were being captured.

Participants

Overall, 28 participants completed a Q-sort, and although a relatively small sample, this is acceptable within Q-methodology (Watts & Stenner, 2012). An assumption within Q-methodology is that a reliable factor must have loadings of at least four or more participants (Van Exel & de Graaf, 2005). A positive of this study is that the two-factor solution had 16 participants loaded on to factor one, '*Enriching and exposing to the transience of life*', and 11 on to factor two, '*Connection neighbouring disconnection*'. One participant's (the pastor's) Q-sort did not load on to either factor, indicating an idiosyncratic viewpoint.

Collected demographic information indicates that the participants represented a good range of professions, ages, and years of experience. Most of the sample were female who had direct contact with clients. Efforts could have been made to recruit more males, however, from discussing the results with a member of the workforce department, it would appear this reflects the general demographics of the VCC workforce.

Unfortunately, no one from the inpatient, outpatient, or palliative care departments took part in the study. It would have been interesting to compare those working within these areas as they all represent working with patients at very different points on the cancer pathway (see Figure 1). It could be hypothesised that those who work in outpatients may view more PTG as many of the patients are in remission and remain well, whereas those who work on the inpatient ward or in palliative care may view less PTG and, therefore, experience less VPTG. These processes may be the reason for the lack of recruitment from these areas. It would be interesting to investigate this hypothesis in a future study.

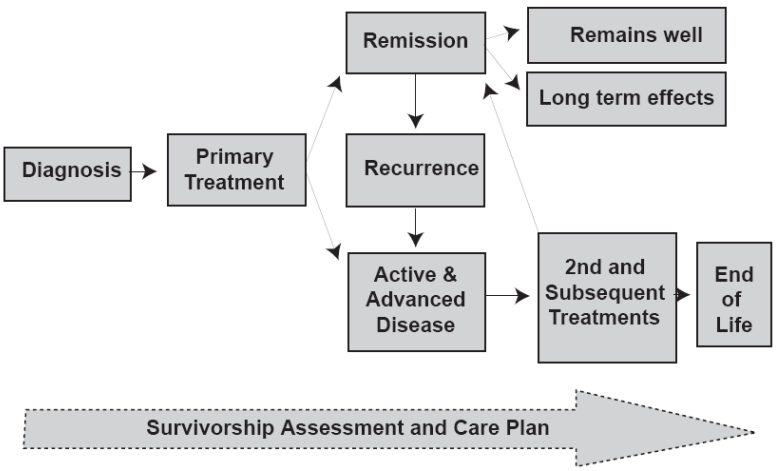

Figure 5. The cancer pathway. Source:(Department of Health, 2010)

Q-Analysis and factor interpretation

PQMethod (Schmolck & Atkinson, 2002) is a specialist disc operating system (DOS) based computer program specifically designed for Q-methodology analysis. Initially, it took time to acclimatise to using a DOS-based program. From viewing online videos, I soon gained confidence in using the program and it worked well in analysing the 28 Q-sorts. Using principal component analysis (PCA) PQMethod extracts (un-rotated) factors, then rotates them according to variance using varimax rotation. This determines clusters of participants with similar opinions and is followed by an interpretative process in which factors are examined beside the qualitative rationales provided. This was a new approach for me and I enjoyed combining both the qualitative and quantitative elements Q-methodology offers. During this process, it is acknowledged that there is potential for researcher bias and consultations with my supervisors, one of which has expertise with Q-methodology and the other who has expertise in oncology, enabled me to maintain reflexivity. Another strategy used to tackle bias included waiting to view the demographic data associated with the two factors. This ensures that my preconceptions/assumptions did not influence the interpretations of the factors.

Consideration was also given to post-hoc analysis in which statistics could be used to explore differences in staff demographics between the two factors. Although, after consultation with my research supervisor, it was advised that Q-researchers do not customarily use statistical analysis to look for differences in viewpoints, therefore, the absence of this analysis does not weaken the significance of these findings.

Paper 2b – Vicarious Post-Traumatic Growth, A Psychological Sequelae of Working in Oncological Services

The second empirical study facilitated a cross-sectional exploration of VPTG and professionals' quality of life using two measures: the PTGI (Tedeschi & Calhoun, 1996) and the professionals' quality of life questionnaire (ProQoL; Stamm, 2010). It was decided to incorporate an exploratory cross-sectional part to this study firstly out of curiosity as no quantitative studies have specifically explored oncology staff experiences of VPTG. Secondly, I had some anxiety that the response rate may be affected due to unfamiliarity with Q-methodology, therefore, to accustom participants to it. It was decided to ask them to complete a self-report measure prior to the Q-sort. This decision was not taken lightly as consideration was given to the possibility of participants completing the questionnaires and then dropping out of the study, as well as the issue of priming. On review, 12 staff members dropped out of the study prior to completing the Q-sort; this may have been combated by having the facility to save and return to the online platform later. Priming was also considered; there appears to be no literature regarding the relationship between priming effects and Q-sorting, therefore, it is assumed that there are elements of priming effects, however, it is also possible that this gave participants an opportunity to reflect more deeply on their own views of VPTG.

Recruitment and participants

The same procedure of recruitment used for the Q-methodology study applies. Within this study, three participants were recruited informally following a general conversation. Overall, 40 participants completed the PTGI (Tedeschi & Calhoun, 1996) and the ProQoL (Stamm,

2010). Demographic information indicates the sample represents a good range of staff members.

In retrospect, whilst the project was presented to a large audience at multiple departmental meetings, this may have been a missed opportunity to provide paper-based copies of the questionnaires with invitations to complete the Q-sort later.

Why the PTGI and ProQol?

Initially, the pilot of this study included a large battery of self-report questions including:

- The Trauma History Screen (THS: Carlson et al., 2011)
- The Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997)
- The Post-Traumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996)
- The Warwick-Edinburgh Mental Well-being Scale (WEMWBS; Tennant et al., 2007)
- The Maslach Burnout Inventory (MBI; Maslach, Jackson, & Leiter, 1996)

From reviewing previous VPTG studies, an adapted version of the PTGI has been used to capture VPTG, therefore, the same approach was adopted for this study. The PTGI has undergone some criticism for the inclusion of the spiritual change subscale (Joseph, 2011). The recently developed PTGI-X (Tedeschi, Cann, Taku, Senol-Durak, & Calhoun, 2017), a 25-item measure with additional spiritual change related questions, has addressed these concerns and allows participants of different cultural contexts to more fully report their spiritual change experiences. Although the PTGI-X is the most up-to-date version of the PTGI, it was decided to use the PTGI-21 to permit comparison with previous VPTG studies.

From the results of the systematic review, there is some evidence regarding the relationship between personal trauma and VPTG (Cosden, Sanford, Koch, & Lepore, 2016), therefore, the

THS and IES-R were proposed to explore this further. I was also curious to explore the relationship between staff members' wellbeing and VPTG, with little previous literature suggesting a negative correlation (Taku, 2014). Therefore, after reviewing the MBI and WEMWBS, they both appeared to be appropriate measures to record staff wellbeing.

After discussions with those who piloted the study, feedback revealed some concerns firstly regarding the large amount of time it took to complete the battery of questionnaires and the Q-sort and secondly, regarding the ethics of asking professionals to highlight personal traumas with little support afterwards. These concerns were fed back to my supervisors and it was agreed that the number of questionnaires should be reduced. During this time, whilst on my elective placement, I became aware of the ProQoL questionnaire (Stamm, 2010) and felt that this offered a balance between both positive and negative professionals' wellbeing, therefore, it was decided to replace the WEMWBS and MBI with the ProQoL and remove the trauma history questionnaires for ethical reasons.

In retrospect, it may have been advantageous for this study to have gained an understanding of staff members' personal trauma history. This could have been balanced by a questionnaire exploring positive life events, however, this may have decreased the response rate and put the achievability of the study in jeopardy; this could be a piece of future research.

Quantitative analysis

The quantitative analysis included using the Statistical Package for the Social Sciences for descriptive, correlational, and regression analysis. This process included a submersion within a statistical world that I had not entered fully since my undergraduate degree over ten years

ago. I found the process comparable to riding a bike after a long time; at first, I was apprehensive and questioned whether I would be able to understand which statistical test is needed, let alone interpret them. Surprisingly, after immersing myself in a range of statistics books (Field, 2017), online videos (RStatsInstitute, n.d.), and consultations with the university stats data clinic and my research supervisor, I gained confidence and developed new statistical knowledge and skills.

Limitations of empirical papers – IT issues

Firstly, the decision to facilitate data collection via an online platform required much more time than anticipated. Firstly, the time to create the online platform took a few weeks. Once developed, it took a significant amount of time for the NHS IT department to allow the hyperlink to be made accessible to all staff. Throughout the data collection phase, there continued to be issues with accessing the online platform that affected the study's response rate.

Another consideration that would have been useful was for the online platform to have the option to save the participants' progress, allowing them to return to it later. The dropout rate may have been a consequence of staff members not having the time to complete the whole process in one go, which would have taken approximately 20 minutes. Ideally, Q-sorts should be completed in one session without interruption to facilitate concentration; it is unclear whether the participants who completed the sorts on their own were able to spend a good amount of time completing the sorts without interruption. Although the option to save and complete the Q-sort later may have been more supportive for participants, it may have also increased the likelihood of gathering incomplete data. It also goes against the tradition within

Q-methodology that Q-sorts are completed within one session, as beliefs may not be consistent over time.

Limitations of empirical papers – Materials

The materials used include the Q-methodology statements and the questionnaires of the quantitative study. Firstly, the development of the concourse is open to researcher bias, therefore, it was important to maintain reflexivity and gather as much information regarding VPTG as possible. The reduction of the statements from 77 to 36 may have resulted in some important themes being left out, although contingencies were put in place to try to reduce the likelihood of this happening such as the statements being review by supervisors and those that piloted the study initially.

Q-methodology, the PTGI, and ProQoL are all self-report methods, therefore, all have the potential for socially desirable responding. The author was aware of this and advised that all information provided is confidential and is not viewed by managers. Participants were also encouraged to answer honestly and that negative opinions were also appropriate.

Within this study, the capacity to provide materials in another language such as Welsh was not feasible, therefore, the research was reliant on staff members being able to read the English language.

Limitations of empirical papers – Timing

Overall, the timing of the study may have added some limitations to the study. At the time data was being collected, the centre was also being filmed and the broadcasting of a television programme called *Hospital of Hope* took place. This may have caused some priming effects

and additional biases. At the same time, the hospital was also under consultation for the development of a new hospital site. From discussions with my field supervisor, this was understandably causing uncertainty and worry within the workforce. It may have been that at this time the staff team were more preoccupied with the future of the hospital and, therefore, felt unable to reflect on whether they are experiencing VPTG.

Theoretical implications

When reporting the results of both empirical papers, I was mindful that the two methodologies cannot imply causality, also that the conceptualisation of VPTG is still in its infancy. Due to this, it was decided not to align this research to one PTG model or theory. Overall, there are three main views of PTG either as a coping strategy, coping outcome, or illusion. Coping strategy models describe PTG as a meaning-making coping process in which individuals engage in self-enhanced appraisal, making comparisons with others, or making memories negative to gain a sense of mastery over the traumatic event (Taylor, 1983). Those that conceptualise PTG as a coping outcome describe it as the disengagement from pre-trauma beliefs that are not consistent with the traumatic event, with important moderators such as rumination and social support (Tedeschi & Calhoun, 2004) whereas the two-component model (Zoellner & Maercker, 2006), considers PTG to have a functional and an illusionary side. In the short term, positive illusions help ease emotional distress via cognitive avoidance strategies such as denial. This is sometimes maladaptive and prevents the long-term adjustment facilitated by the functional part of PTG. Although there is no empirical evidence of how these conceptualisations of PTG work vicariously in oncology professionals, it is wondered whether the engagement in rescuer roles is akin to the self-enhancement as mentioned by Taylor (1983). It is also wondered whether oncology professionals engage in

the positive illusionary side, denial for example (Zoellner & Maercker, 2006). This research cannot offer any firm conclusions regarding the theoretical underpinning of VPTG, however, it does present some interesting hypotheses.

Other important theories

From reflecting on the findings of this study, I have also noted that other theories may be equally important when considering VPTG in oncology professionals. The organisational psychology theory attraction-selection-attrition (ASA; Schneider, Goldstein, & Smith, 1995) is based on the notion that 'the people make the place' (Patterson, Zibarras, & Edwards, 2014, p.11). This fits well with my reflections from my older adult placement as well as from viewing the *Hospital of Hope* documentary. The ASA theory suggests that over time, the values and personalities of the workforce become increasingly homogenous as individuals are attracted to organisations based on similar values. Organisations with similar values to potential employees are selected, however, when organisational and workforce values are incompatible, attrition occurs. The ASA theory compliments the comments made by staff in the Q-methodology study such as, 'I work with some amazing and inspirational people who do wonderful things.'

Clinical implications of the thesis

After I had completed analysing the data for the study, I met with a member of the workforce department to discuss the preliminary results and discuss the clinical implications. From this discussion, it was established that employees already have access to support systems including an independent employee assistance programme, occupational health policies and procedures, and mindfulness training. The staff member from the workforce department

expressed an interest in the clinical implications suggested by this study and has agreed to receive the results of this study and feed them to the senior management team.

The current study highlighted similarities between the Q-methodology factors and acceptance and commitment therapy (ACT). ACT-based approaches support individuals to connect with and pursue personally valued behaviours whilst living with difficult psychological events (thoughts, feelings, and urges). Traditionally, CBT approaches have focused on the teaching of modification techniques to challenge said psychological events (Hayes, Luoma, Bond, Masuda, & Lillis, 2006). Instead, ACT encourages psychological flexibility, which is the ability to connect fully in the present moment, with openness to our experience, and to take action guided by our values (Harris, 2009). ACT is underpinned by six core therapeutic processes known as the hexaflex (see Figure 2).

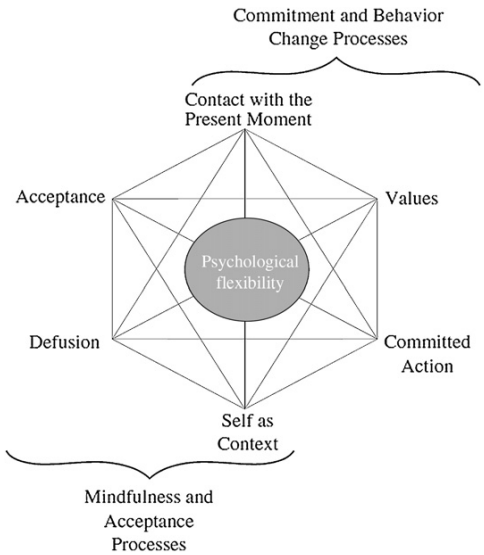

Figure 2. The hexaflex model of acceptance and commitment therapy. Source: (Hayes et al., 2006, p.8.)

Cognitive fusion describes the process in which a person is entangled with their thoughts so much so that we focus our attention on the contents of our mind rather than what we are experiencing (Harris, 2012). Linked to the findings of the quantitative paper, those with more

experience rated themselves as having more VPTG and I wonder whether, during the early years of employment, staff are defusing from their fused thoughts such as, 'people live until they are old and grey'. This was also reflected in the Q-methodology factor '*enriching but exposing to the transience of life*'. Therefore, an ACT-based approach may be helpful in promoting VPTG to those early on in their career.

Values was another part of the hexaflex that complemented the findings of the factor '*enriching but exposing to the transience of life*.' Many of the staff positively rated the statement 'working in this field fits well with my core values'. An ACT-based approach supporting staff members to pursue their chosen life directions and motivations may encourage VPTG and has already proven to lower stress levels and increase health professionals' wellbeing (Veage et al., 2014).

The second factor, '*connection neighbouring disconnection*', highlights the part of the hexaflex named contact with the present moment. When we are truly connected with another person we are fully present in the moment with them (Harris, 2009). Many of the staff members noted a disconnect from their community. My field supervisor reflected that she has also noticed this. Explaining that once those within her community know that she works in oncology, conversations change to lighter subjects or they state, 'I don't know how you can do that job'. Myself and my field supervisor reflected upon this. From both our personal and occupational experiences, we believe that for many, cancer triggers unpleasant feelings. When we experience such feelings, we use coping strategies to either push them away or avoid them (experiential avoidance). This may be the disconnect that staff members

are relating to. Therefore, ACT-based strategies that support living in the present moment and maintaining connection may be useful.

The facilitation of an organisation-wide reflective space such as a Schwartz round, was also explored. A Schwartz round lasts for about an hour and includes a presentation of a patient experience by a multidisciplinary panel. The panel describes the impact the patient experience has had on them and it is then opened to the audience to offer their reflections on similar patients. The provision of Schwartz rounds and its relationship with VPTG has not been explored and would be an interesting piece for future research. From the results of the systematic review, which suggest that rumination (Rodríguez-Rey et al., 2017) and supervision (Brockhouse, Msetfi, Cohen, & Joseph, 2011; Linley & Joseph, 2007) increase VPTG, it could be hypothesised that Schwartz rounds may encourage VPTG.

Dissemination plan

> *'Research is of no use unless it gets to the people who need to use it'*
> Professor Chris Whitty, Chief Scientific Adviser for the Department of Health
> (National Institute for Health Research [NIHR], n.d.)

Within the UK, approximately £17 million is allocated to clinical psychology doctoral research (Wittkowski, Bohen, & Hare, 2017). In addition to this, publication rates remain consistently low (Eke, Holttum, & Hayward, 2012). The dearth of publications from high-quality clinical psychology doctoral theses not only presents a financial burden for funders but a missed opportunity for clinical psychology as a profession to promote itself and contribute to a wide range of evidence bases. For research findings to be useful, results need to be available at local, regional, and national levels as soon as possible (Johnson & Kerr, 2015). With these

considerations in mind, it felt incredibility important for me to develop a dissemination strategy (see Table 1).

Table 1.. Dissemination strategy

Date	Audience	Mode
June 2018	Cardiff and Vale Healthboard (local)	Poster presentation
June 2018	Readers of *Psycho-Oncology* and *British Journal of Health Psychology* (global)	Submit to journals
July 2018	Health and social care professionals working in oncology services (national)	Magazine article for *MacVoice*
September 2018	Velindre NHS Trust (local)	Verbal and poster presentation
September 2018	British Psychological Society, Division of Health Psychology Conference in Newcastle (national)	Poster presentation
March 2019	British Psychosocial Oncology Society (BPOS) Chester (national)	Poster presentation

To increase the chances of implementation in services and clinical practice, in accordance with recommendations from Panisset et al. (2012), the dissemination strategy was developed to cover a wide variety of audiences in different formats. The target journal of the empirical paper, *Psycho-Oncology*, is allied with the British Psychosocial Oncology Society who hold an annual conference. I have approached the organisers and they are very interested in hosting the research at next year's conference. Again, on a national level, the British Psychology Society's, division of health psychology annual conference is due to take place in September 2018, therefore, I have submitted a poster presentation and am awaiting a decision as to whether it has been accepted or not (see Appendix 9, for the poster presentation).

After discussing the dissemination strategy with my field supervisor, she raised my awareness to *MacVoice*, which is the cancer charity, Macmillan's, quarterly magazine for health and

social care professionals. An easy read summary of VPTG and the findings of this study will be sent for consideration.

Personal reflections

Whilst conducting this research, I was on a clinical placement with a service specifically designed to promote trauma-informed ways of working. Part of the training and skills development sessions I co-facilitated included encouraging professionals in self-care to protect against vicarious traumatisation. From the contrast between my placement and thesis work, I became curious as to how PTG works in other settings and whether the results of this study would be replicated in psychologists, teachers, and social work settings or whether the experience of VPTG differs.

Managing the demands of both working on a clinical placement and completing this piece of research has been challenging. It has also given me an experience of the realities of conducting research as a clinician. To manage these demands, I have developed and used organisational, time management, and communication skills. Overall, this experience has given me the opportunity to fulfil research competencies on the journey to qualifying as a clinical psychologist

Conclusion

Working within health care services involves 'daily exposure to the reality of distress, decay and disfigurement and to the possibility of death' (Wren, 2014, p.20). As previously mentioned, I have a keen interest in how individuals continue to work in such areas in which they are vicariously exposed to daily trauma. There is increasing emphasis on the role of clinical psychologists in employee wellbeing services, with Athanasiades and Winthrop (2007)

stating that psychologists have a great wealth of knowledge and skills applicable to these services. As such, I feel passionate about promoting and supporting staff wellbeing and hope to replicate this research into a yearly service evaluation once in a qualified post.

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APPENDICES

Appendix 1 – British Journal of Health Psychology Author Guidelines

Papers describing quantitative research (including reviews with quantitative analyses) should be no more than 5000 words (excluding the abstract, reference list, tables and figures). Papers describing qualitative research (including reviews with qualitative analyses) should be no more than 6000 words (including quotes, whether in the text or in tables, but excluding the abstract, tables, figures and references). The Editors retain discretion to publish papers beyond this length in cases where the clear and concise expression of the scientific content requires greater length.

• Contributions must be typed in double spacing with wide margins. All sheets must be numbered.

• Manuscripts should be preceded by a title page which includes a full list of authors and their affiliations, as well as the corresponding author's contact details.

• For articles containing original scientific research, a structured abstract of up to 250 words should be included with the headings: Objectives, Design, Methods, Results, Conclusions. Review articles should use these headings: Purpose, Methods, Results, Conclusions.

• Statement of Contribution: All authors are required to provide a clear summary of ‘what is already known on this subject?’ and ‘what does this study add?’. Authors should identify existing research knowledge relating to the specific research question and give a summary of the new knowledge added by your study. Under each of these headings, please provide 2-3 (maximum) clear outcome statements (not process statements of what the paper does); the statements for 'what does this study add?' should be presented as bullet points of no more than 100 characters each. The Statement of Contribution should be a separate file.

• Conflict of interest statement: We are now including a brief conflict of interest statement at the end of each accepted manuscript. You will be asked to provide information to generate this statement during the submission process.

• The main document must be anonymous. Please do not mention the authors’ names or affiliations (including in the Method section) and always refer to any previous work in the third person.

• Tables should be typed in double spacing, each on a separate page with a self-explanatory title. Tables should be comprehensible without reference to the text. They should be placed at the end of the manuscript but they must be mentioned in the text.

• Figures can be included at the end of the document or attached as separate files, carefully labelled in initial capital/lower case lettering with symbols in a form consistent with text use. Unnecessary background patterns, lines and shading should be avoided. Captions should be listed on a separate sheet. The resolution of digital images must be at least 300 dpi. All figures must be mentioned in the text.

• For reference citations, please use APA style. Particular care should be taken to ensure that references are accurate and complete. Give all journal titles in full and provide doi numbers where possible for journal articles. For example:

Author, A., Author, B., & Author, C. (1995). *Title of book.* City, Country: Publisher.
Author, A. (2013). Title of journal article. *Name of journal, 1,* 1-16. doi: 10.1111/bjep.12031

• SI units must be used for all measurements, rounded off to practical values if appropriate, with the imperial equivalent in parentheses.

• In normal circumstances, effect size should be incorporated.

• Authors are requested to avoid the use of sexist language.

• Authors are responsible for acquiring written permission to publish lengthy quotations, illustrations, etc. for which they do not own copyright. For guidelines on editorial style, please consult the APA Publication Manual published by the American Psychological Association.

• Manuscripts describing clinical trials are encouraged to submit in accordance with the CONSORT statement on reporting randomised controlled trials.

• Manuscripts reporting systematic reviews and meta-analyses are encouraged to submit in accordance with the PRISMA statement.

• Manuscripts reporting interventions are encouraged to describe them in accordance with the TIDieR checklist.

Colour illustrations can be accepted for publication online. These would be reproduced in greyscale in the print version. If authors would like these figures to be reproduced in colour in print at their expense they should request this by completing a Colour Work Agreement form upon acceptance of the paper.

Appendix 2 – Psycho-Oncology Author Guidelines

Psycho-Oncology publishes a number of different article types including:

• **Original Paper**

Original research papers should contain reports of new research findings that make a significant contribution to knowledge. Original papers should not exceed 4,000 words (including no more than four figures and/or tables) plus up to 40 references.

• **Reviews**

Reviews should be critical reviews of the literature, including systematic reviews and meta-analyses and should not exceed 6,000 words, excluding references. Please complete and upload a PRISMA or AMSTAR checklist for systematic reviews.

• **Clinical Correspondence**

This includes brief commentaries, letters to the editor, feasibility studies, clinical updates, case reports and brief research reports. They must include five succinct key points (and no abstract), not exceed 1,500 words in total (including no more than two figures/tables). References should be limited to ten and are not included in the word count.

Qualitative manuscript submissions should usually be based on a minimum of 20 respondents. For cross sectional studies, we require authors to adhere to the STROBE reporting standards for observational research. Please upload your STROBE checklist alongside your submission.

Manuscripts must be submitted as a Word or rtf file and should be written in English. The manuscript should be submitted in separate files: main text file; figures.

Text file

The text file should be presented in the following order:

(i) Title; (ii) a short running title of less than 70 characters; (iii) the full names of the authors; (iv) the author's institutional affiliations at which the work was carried out, (footnote for author's present address if different to where the work was carried out); (v) abstract; (vi) main text, (vii) acknowledgements, (viii) conflict of interest statement, (ix) references, (x) tables (each table complete with title and footnotes) (xi) figure legends, (xii) appendices (if relevant). Figures and supporting information should be supplied as separate files.

Title

The title should be a short informative title that contains the major key words. The title should not contain abbreviations.

Authorship

Please refer to the journal's authorship policy the Editorial Policies and Ethical Considerations section for details on eligibility for author listing.

Acknowledgements

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section. Financial and material support should also be mentioned. Thanks to anonymous reviewers are not appropriate.

Conflict of Interest Statement

You will be asked to disclose conflicts of interest during the submission process. See the section 'Conflict of Interest' in the Editorial Policies and Ethical Considerations section for details on what to include in this section. Please ensure that you liaise with all co-authors to confirm agreement with the final statement. The Conflict of Interest statement should be included within the main text file of your submission.

Abstract

Please provide an abstract of no more than 250 words. Abstracts should be structured according to the following headings: objective, methods, results, conclusions.

Keywords

Please provide up to 10 keywords and list them in alphabetical order. Please ensure that the keywords, cancer and oncology, are used for indexing purposes. Keywords should be taken from those recommended by the US National Library of Medicine's Medical Subject Headings (MeSH) browser list at https://www.nlm.nih.gov/mesh/.

Main text

Where possible, the text should be divided into the following sections: Background, Methods (including statistical methods), Results and Conclusions. All papers must include within the Conclusions section a paragraph explaining the study limitations (with subtitle "study limitations") and a paragraph explaining the clinical implications of the study (with subtitle "clinical implications").

A statement explicitly describing the ethical background to this study and any institutional or national ethical committee approval (including approval number) must be included within the manuscript.

For clinical trial reports, the clinical trial registration number must be included within the manuscript.

References

All references should be numbered consecutively in order of appearance and should be as complete as possible. In text citations should be superscript numbers. Journal titles are abbreviated; abbreviations may be found in the following: MEDLINE, Index Medicus, or CalTech Library.

Submissions are not required to reflect the precise reference formatting of the journal (use of italics, bold etc.), however it is important that all key elements of each reference are included. Please see below for examples of reference content requirements.

For more information, please see the Vancouver Reference Style Guide

Sample references follow:

Journal Article

1. Wood WG, Eckert GP, Igbavboa U, Muller WE. Statins and neuroprotection: a prescription to move the field forward. Ann N Y Acad Sci 2010; 1199:69-76.

Book

2. Hoppert, M. Microscopic techniques in biotechnology. Weinheim: Wiley-VCH; 2003.

Electronic Material

3. Cancer-Pain.org [homepage on the internet]. New York: Association of Cancer Online Resources, Inc.; c2000–01 [Cited 2015 May 11]. Available from: http://www.cancer-pain.org/.

Tables

Tables should be self-contained and complement, but not duplicate, information contained in the text. They should be supplied as editable files, not pasted as images. Legends should be concise but comprehensive – the table, legend and footnotes must be understandable without reference to the text. All abbreviations must be defined in footnotes. Footnote symbols: †, ‡, §, ¶, should be used (in that order) and *, **, *** should be reserved for P-values. Statistical measures such as SD or SEM should be identified in the headings.

Figure Legends

Legends should be concise but comprehensive – the figure and its legend must be understandable without reference to the text. Include definitions of any symbols used and define/explain all abbreviations and units of measurement.

Preparing Figures

Although we encourage authors to send us the highest-quality figures possible, for peer-review purposes we are happy to accept a wide variety of formats, sizes, and resolutions.

Guidelines for Cover Submissions

If you would like to send suggestions for artwork related to your manuscript to be considered to appear on the cover of the journal, please follow these general guidelines.

Appendices

Appendices will be published after the references. For submission they should be supplied as separate files but referred to in the text. Supporting Information

Supporting Information

Supporting information is information that is not essential to the article but that provides greater depth and background. It is hosted online and appears without editing or typesetting. It may include tables, figures, videos, datasets, etc. Click here for Wiley's FAQs on supporting information.

Note, if data, scripts or other artefacts used to generate the analyses presented in the paper are available via a publicly available data repository, authors should include a reference to the location of the material within their paper.

General Style Points

The following links provide general advice on formatting and style.

• Abbreviations: In general, terms should not be abbreviated unless they are used repeatedly and the abbreviation is helpful to the reader. Initially use the word in full, followed by the abbreviation in parentheses. Thereafter use the abbreviation only.

• Units of measurement: Measurements should be given in SI or SI-derived units. Visit the Bureau International des Poids et Mesures (BIPM) website at http://www.bipm.fr for more information about SI units.

• Trade Names: Chemical substances should be referred to by the generic name only. Trade names should not be used. Drugs should be referred to by their generic names. If proprietary drugs have been used in the study, refer to these by their generic name, mentioning the proprietary name, and the name and location of the manufacturer, in parentheses.

Research Reporting Guidelines

Accurate and complete reporting enables readers to fully appraise research, replicate it, and use it. We encourage authors to adhere to the following research reporting standards.

• CONSORT
• SPIRIT
• PRISMA
• PRISMA-P
• STROBE
• CARE
• COREQ
• STARD and TRIPOD
• CHEERS
• the EQUATOR Network
• Future of Research Communications and e-Scholarship (FORCE11)
• ARRIVE guidelines • National Research Council's Institute for Laboratory Animal Research guidelines: the Gold Standard Publication Checklist from Hooijmans and colleagues
• Minimum Information Guidelines from Diverse Bioscience Communities (MIBBI) website; Biosharing website
• REFLECT statement

Conflict of Interest

Psycho-Oncology requires that all authors disclose any potential sources of conflict of interest. Any interest or relationship, financial or otherwise that might be perceived as influencing an author's objectivity is considered a potential source of conflict of interest. These must be disclosed when directly relevant or directly related to the work that the authors describe in their manuscript. Potential sources of conflict of interest include, but are not limited to, patent or stock ownership, membership of a company board of directors, membership of an advisory board or committee for a company, and consultancy for or receipt of speaker's fees from a company. The existence of a conflict of interest does not preclude publication. If the authors have no conflict of interest to declare, they must also state this at submission. It is the responsibility of the corresponding author to review this policy with all authors and collectively to disclose with the submission ALL pertinent commercial and other relationships. The Conflict of Interest statement should be included within the main text file of your submission.

Funding

Authors should list all funding sources in the Acknowledgments section. Authors are responsible for the accuracy of their funder designation.

Authorship

The list of authors should accurately illustrate who contributed to the work and how. All those listed as authors should qualify for authorship according to the following criteria:

1) Have made substantial contributions to conception and design, or acquisition of data, or analysis and interpretation of data;

2) Been involved in drafting the manuscript or revising it critically for important intellectual content;

3) Given final approval of the version to be published. Each author should have participated sufficiently in the work to take public responsibility for appropriate portions of the content; and

4) Agreed to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

Contributions from anyone who does not meet the criteria for authorship should be listed, with permission from the contributor, in an Acknowledgments section (for example, to recognize contributions from people who provided technical help, collation of data, writing assistance, acquisition of funding, or a department chairperson who provided general support). Prior to submitting the article all authors should agree on the order in which their names will be listed in the manuscript.

Additional authorship options

Joint first or senior authorship: In the case of joint first authorship a footnote should be added to the author listing, e.g. 'X and Y should be considered joint first author' or 'X and Y should be considered joint senior author.'

ORCID

As part of our commitment to supporting authors at every step of the publishing process, *Psycho-Oncology* requires the submitting author (only) to provide an ORCID iD when submitting a manuscript.

Appendix 3. Velindre research and development department ethical approval

Velindre NHS Trust Headquarters
Pencadlys Ymddiriedolaeth GIG Felindre

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Heol Billingsley
Parc Nantgarw
Cardiff
CF15 7QZ

Tel/Ffon : (029) 2061588
www.velindre-tr.wales.nhs.uk

Correspondence to: Mrs Sarah Townsend, Research and Development Manager, Velindre NHS Trust, Research & Development Office, Velindre Cancer Centre, Velindre Road, Whitchurch, Cardiff, CF14 2TL
Email: Sarah.Townsend@wales.nhs.uk
Tel: 029 20 615888 ext: 4670

PRIVATE AND CONFIDENTIAL

Miss Debbie Mills
Trainee Clinical Psychologist
11th Floor, School of Psychology
Cardiff University
Tower Building
70 Park Place
Cardiff
CF10 3AT

31st JT
~~28th~~ July 2017

Dear Miss Mills

Letter of access for research

This letter confirms your right of access to conduct research through Velindre NHS Trust for the purpose and on the terms and conditions set out below. This right of access commences on 28th July 2017 and ends on 31st May 2018 unless terminated earlier in accordance with the clauses below.

You have a right of access to conduct such research as confirmed in writing in the letter of permission for research from this NHS organisation. Please note that you cannot start the research until the Principal Investigator for the research project has received a letter from us giving permission to conduct the project.

The information supplied about your role in research at Velindre NHS Trust has been reviewed and you do not require an honorary research contract with this NHS organisation. We are satisfied that such pre-engagement checks as we consider necessary have been carried out.

You are considered to be a legal visitor to Velindre NHS Trust premises. You are not entitled to any form of payment or access to other benefits provided by this NHS organisation to employees and this letter does not give rise to any other relationship between you and this NHS organisation, in particular that of an employee.

While undertaking research through Velindre NHS Trust, you will remain accountable to your employer, Cardiff University, but you are required to follow the reasonable instructions of the head of the relevant NHS Department/research supervisor in this NHS organisation or those given on her/his behalf in relation to the terms of this right of access.

Where any third party claim is made, whether or not legal proceedings are issued, arising out of or in connection with your right of access, you are required to co-operate fully with any investigation by this NHS organisation in connection with any such claim and to give all such assistance as may reasonably be required regarding the conduct of any legal proceedings.

You must act in accordance with Velindre NHS Trust policies and procedures, which are available to you upon request, and the Research Governance Framework.

You are required to co-operate with Velindre NHS Trust in discharging its duties under the Health and Safety at Work etc Act 1974 and other health and safety legislation and to take reasonable care for the health and safety of yourself and others while on Velindre NHS Trust premises. You must observe the same standards of care and propriety in dealing with patients, staff, visitors, equipment and premises as is expected of any other contract holder and you must act appropriately, responsibly and professionally at all times.

You are required to ensure that all information regarding patients or staff remains secure and *strictly confidential* at all times. You must ensure that you understand and comply with the requirements of the NHS Confidentiality Code of Practice (https://www.gov.uk/government/publications/confidentiality-nhs-code-of-practice) and the Data Protection Act 1998 (http://www.legislation.gov.uk/ukpga/1998/29/contents). Furthermore you should be aware that under the Act, unauthorised disclosure of information is an offence and such disclosures may lead to prosecution.

You should ensure that, where you are issued with an identity or security card, a bleep number, email or library account, keys or protective clothing, these are returned upon termination of this arrangement. Please also ensure that while on the premises you wear your ID badge at all times, or are able to prove your identity if challenged. Please note that Velindre NHS Trust accepts no responsibility for damage to or loss of personal property.

We may terminate your right to attend at any time either by giving seven days' written notice to you or immediately without any notice if you are in breach of any of the terms or conditions described in this letter or if you commit any act that we reasonably consider to amount to serious misconduct or to be disruptive and/or prejudicial to the interests and/or business of Velindre NHS Trust or if you are convicted of any criminal offence. Your substantive employer is responsible for your conduct during this research project and may in the circumstances described above instigate disciplinary action against you.

Velindre NHS Trust will not indemnify you against any liability incurred as a result of any breach of confidentiality or breach of the Data Protection Act 1998. Any breach of the Data Protection Act 1998 may result in legal action against you and/or your substantive employer.

If your current role or involvement in research changes, or any of the information provided in your Research Passport changes, you must inform your employer through their normal procedures. You must also inform your nominated manager in this NHS organisation.

Yours sincerely

Sarah Townsend
Research and Development Manager and Sponsor Representative
Velindre NHS Trust

cc: HR office, Velindre Cancer Centre
Ms Juliet Jukes – HR office, Cardiff University, 10th Floor, 30-36 Newport Road, Cardiff, CF24 0DE

Appendix 4 – Cardiff University ethical approval and sponsorship

Ethics Feedback - EC.17.06.13.4908

psychethics
Deborah Mills; Dougal Hare
Tuesday, 20 June 2017 at 10:57 am
Show Details

Dear Debbie,

The Ethics Committee has considered your PG project proposal: Vicarious post traumatic growth in staff of oncological services; a Q methodology study (EC.17.06.13.4908).

The project has been approved on the condition that information for a support group is added in case a participant is distressed after engaging with the questions.

Please note that if any changes are made to the above project then you must notify the Ethics Committee.

Best wishes,
Mark Jones

Research and Innovation Services
Gwasanaethau Ymchwil ac Arloesi
Director, Cyfarwyddwr Geraint W Jones

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15.08.2017

Dr Dougal Hare,
South Wales Doctoral Program in Clinical Psychology,
School of Psychology,
Cardiff University,
70 Park Place,
Tower Building,
Cardiff.
CF10 3AT

Dear Dr Hare,

Vicarious post traumatic growth in staff of oncological services; a Q methodology study.

I understand that you are acting as Chief Investigator for the above DClinPsy project to be conducted by Deborah Mills.

I confirm that Cardiff University agrees in principle to act as Sponsor for the above project, as required by the Research Governance Framework for Health and Social Care.

Scientific Review
I can also confirm that Scientific Review has been obtained from the DClinPsy supervisors.

Insurance
The necessary insurance provisions will be in place prior to the project commencement. Cardiff University is insured with UMAL. Copies of the insurance certificate are attached to this letter.

Approvals

On completion of your IRAS form (required for NHS REC and NHS R&D/HRA approvals), you will be required to obtain signature from the Sponsor ('Declaration by the Sponsor Representative').

Please then submit the project to the following bodies for approval:

- Cardiff University School Research Ethics Committee (SREC)
- Health & Care Research Wales Permissions Coordinating Unit (formerly known as NISCHR PCU) - to arrange host organisation R&D approval for Welsh NHS sites- for approval at Velindre HB.

Once Research and Innovation Services has received evidence of the above approvals, the University is considered to have accepted Sponsorship and your project may commence.

Roles and Responsibilities
As Chief Investigator you have signed a Declaration with the Sponsor to confirm that you will adhere to the standard responsibilities as set out by the Research Governance Framework for Health and Social Care. In accordance with the University's Research Integrity & Governance Code of Practice, the Chief Investigator is also responsible for ensuring that each research team member is qualified and experienced to fulfill their delegated roles including ensuring adequate supervision, support and training.

If your study is adopted onto Health & Care Research Wales Clinical Research Portfolio you are required to upload recruitment data onto the portfolio database.

Contracts

No research specific tasks delegated to NHS Host Organisation staff (staff acting as participants) – no contract required.

May I take this opportunity to remind you that, as Chief Investigator, you are required to:

- ensure you are familiar with your responsibilities under the Research Governance Framework for Health and Social Care;
- undertake the study in accordance with Cardiff University's Research Integrity & Governance Code of Practice (available on the Cardiff University Staff and Student Intranet) and the principles of Good Clinical Practice;
- ensure the research complies with the Data Protection Act 1998;
- where the study involves human tissue, ensure the research complies with the Human Tissue Act and the Cardiff University Code of Practice for Research involving Human Tissue (available on the Cardiff University Staff and Student Intranet);
- inform Research and Innovation Services of any amendments to the protocol or study design, including changes to start /end dates;
- co-operate with any audit, monitoring visit or inspection of the project files or any requests from Research and Innovation Services for further information.

You should quote the following unique reference number in any correspondence relating to Sponsorship for the above project:

SPON1618-17

This reference number should be quoted on all documentation associated with this project.

Yours sincerely

Dr K J Pittard Davies
Head of Research Governance and Contracts
Direct line: +44 (0) 29208 79274
Email: resgov@cardiff.ac.uk

Cc Deborah Mills

Appendix 5 – Recruitment Poster

If you work in Velindre Cancer Centre you can help us!

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

Many believe that working with cancer can be stressful and depressing.

You work in Velindre!!! That must be so hard!

I couldn't do what you

Working with people with cancer – you're mad!

Well, actually it's really rewarding

We want to find out the positives of working with cancer such as:

- Appreciation for life
- Stronger relationships with loved ones
- More awareness of new possibilities for life

I'm Debbie Mills, Trainee Clinical Psychologist

I was on placement at Velindre in 2014. At the start, I was very nervous about working here, but grew to love it and plan to work in physical health in the future. My doctoral research is to find out whether staff of oncology settings experience personal growth from their work. We're interested in hearing from any one paid to work at Velindre, e.g. CNS, therapies, radiotherapy, porters, admin, any department.

If you're interested in taking part you can do so in two ways:

1 Use the link below

https://www.psych-ssl.manchester.ac.uk/survey/dmills

2 Contact myself on the email below to organise a convenient

Appendix 6a – Online Platform Screenshots – Information Sheet

Vicarious post traumatic growth in staff of oncological services a Q methodology study.

Hello

You are about to participant in research on vicarious post traumatic growth in relation to working with patients experiencing cancer.

We're interested in gathering your views on how you have experienced personal growth from your job. We will compare the results between those who have been working within oncology for a long time to those who have recently begun working in the area. This will help us understand how to support staff and develop support systems.

You will be asked to sort a number of statements and complete a few questionnaires.

For those who wish to take part, your responses will be assigned a non-identifiable code, therefore, all information will be anonymous. This data will be used as part of my doctoral thesis. Upon completion, this research may be submitted to an academic journal for publication.

In the unlikely event that you experience distress during or after taking part in this study, please contact myself Debbie Mills, Trainee Clinical Psychologist (MillsD3@cardiff.ac.uk or Debbie.mills@wales.nhs.uk). Also speak to your line manager or the Psychology Department on 6141.

Unfortunately, we are unable to supply individual feedback, however, overall results of the study can be requested by email.

Participation is voluntary and you are free to withdraw at any time. Alternatively, if you would like to complete the study using a paper based format please contact myself on the email above.

Thank you for taking the time to read the study information.

Click here to complete the consent form

Appendix 6b – Consent Form

Vicarious post traumatic growth in staff of oncological services a Q methodology study.

Consent form

Please answer the following questions before continuing with the questionnaire:

1. I confirm that I have read the information provided and understand the study.
   - Yes
   - No
2. I understand that participation is voluntary and I'm free to withdraw from the study at any time, without giving a reason, without my work being affected.
   - Yes
   - No
3. I understand and consent to the relevant information being collected from myself by questionnaires.
   - Yes
   - No
4. I understand that no personal identifiable information will be given, apart from gender, age, occupation and years of service.
   - Yes
   - No
5. I understand that individual feedback cannot be given, however, I can request feedback of the overall study via emailing the researcher.
   - Yes
   - No
6. I understand that I can contact my line manager, psychology department or GP if I need any additional support.
   - Yes
   - No
7. I **WISH** to participant in this study.
   - Yes
   - No

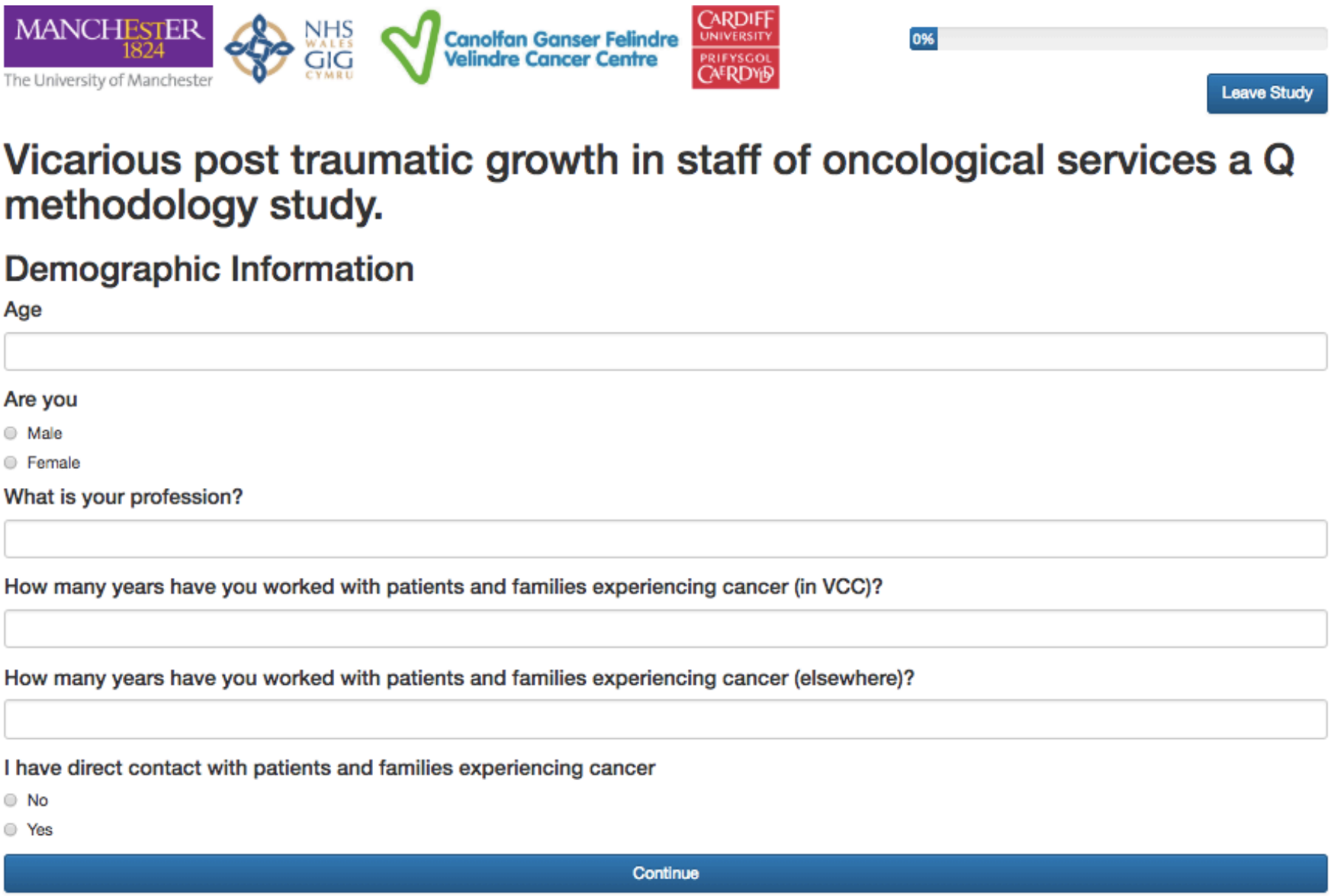
This project has been approved by Velindre Research & Development Department 02920 615888 (.)

Research & Development Department,
Velindre Cancer Centre,
Velindre Road,
Whitchurch,
Cardiff
CF14 2TL

02920 615888

Click here to start the survey

Appendix 6c – Demographics Form



Appendix 6d – Professional Quality of Life Scale (ProQOL)

Vicarious post traumatic growth in staff of oncological services a Q methodology study

Leave Study

Professional Quality of Life Scale (ProQoL)

Professional Quality of Life Scale (ProQOL) Version 5

When you [help] people you have direct contact with their lives. As you may have found, your compassion for those you [help] can affect you in positive and negative ways. Below are some questions about your experiences, both positive and negative, as a [helper]. Consider each of the following questions about you and your current work situation. Select the number that honestly reflects how frequently you experienced these things in the last **30 days.**

	Never	Rarely	Sometimes	Often	Very often
I am happy.	○	○	○	○	○
I am preoccupied with more than one person I [help].	○	○	○	○	○
I get satisfaction from being able to [help] people.	○	○	○	○	○
I feel connected to others.	○	○	○	○	○
I jump or am startled by unexpected sounds.	○	○	○	○	○
I feel invigorated after working with those I [help].	○	○	○	○	○
I find it difficult to separate my personal life from my life as a [helper].	○	○	○	○	○
I am not as productive at work because I am losing sleep over traumatic experiences of a person I [help].	○	○	○	○	○
I think that I might have been affected by the traumatic stress of those I [help].	○	○	○	○	○
I feel trapped by my job as a [helper].	○	○	○	○	○
Because of my [helping], I have felt "on edge" a bout various things.	○	○	○	○	○
I like my work as a [helper].	○	○	○	○	○
I feel depressed because of the traumatic experiences of the people I [help].	○	○	○	○	○
I feel as though I am experiencing the trauma of someone I have [helped].	○	○	○	○	○
I have beliefs that sustain me.	○	○	○	○	○
I am pleased with how I am able to keep up with [helping] techniques and protocols.	○	○	○	○	○
I am the person I always wanted to be.	○	○	○	○	○
My work makes me feel satisfied.	○	○	○	○	○
I feel worn out because of my work as a [helper].	○	○	○	○	○
I have happy thoughts and feelings about those I [help] and how I could help them.	○	○	○	○	○
I feel overwhelmed because my case [work] load seems endless.	○	○	○	○	○
I believe I can make a difference through my work.	○	○	○	○	○
I avoid certain activities or situations because they remind me of frightening experiences of the people I [help].	○	○	○	○	○
I am proud of what I can do to [help].	○	○	○	○	○
As a result of my [helping], I have intrusive, frightening thoughts.	○	○	○	○	○
I feel "bogged down" by the system.	○	○	○	○	○
I have thoughts that I am a "success" as a [helper].	○	○	○	○	○

I can't recall important parts of my work with patients experiencing cancer.	○	○	○	○	○
I am a very caring person.	○	○	○	○	○
I am happy that I chose to do this work.	○	○	○	○	○

Continue

Appendix 6e – Post-Traumatic Growth Inventory (PTGI)

50%

Vicarious post traumatic growth in staff of oncological services a Q methodology study

Leave Study

Post Traumatic Growth Inventory (PTGI)

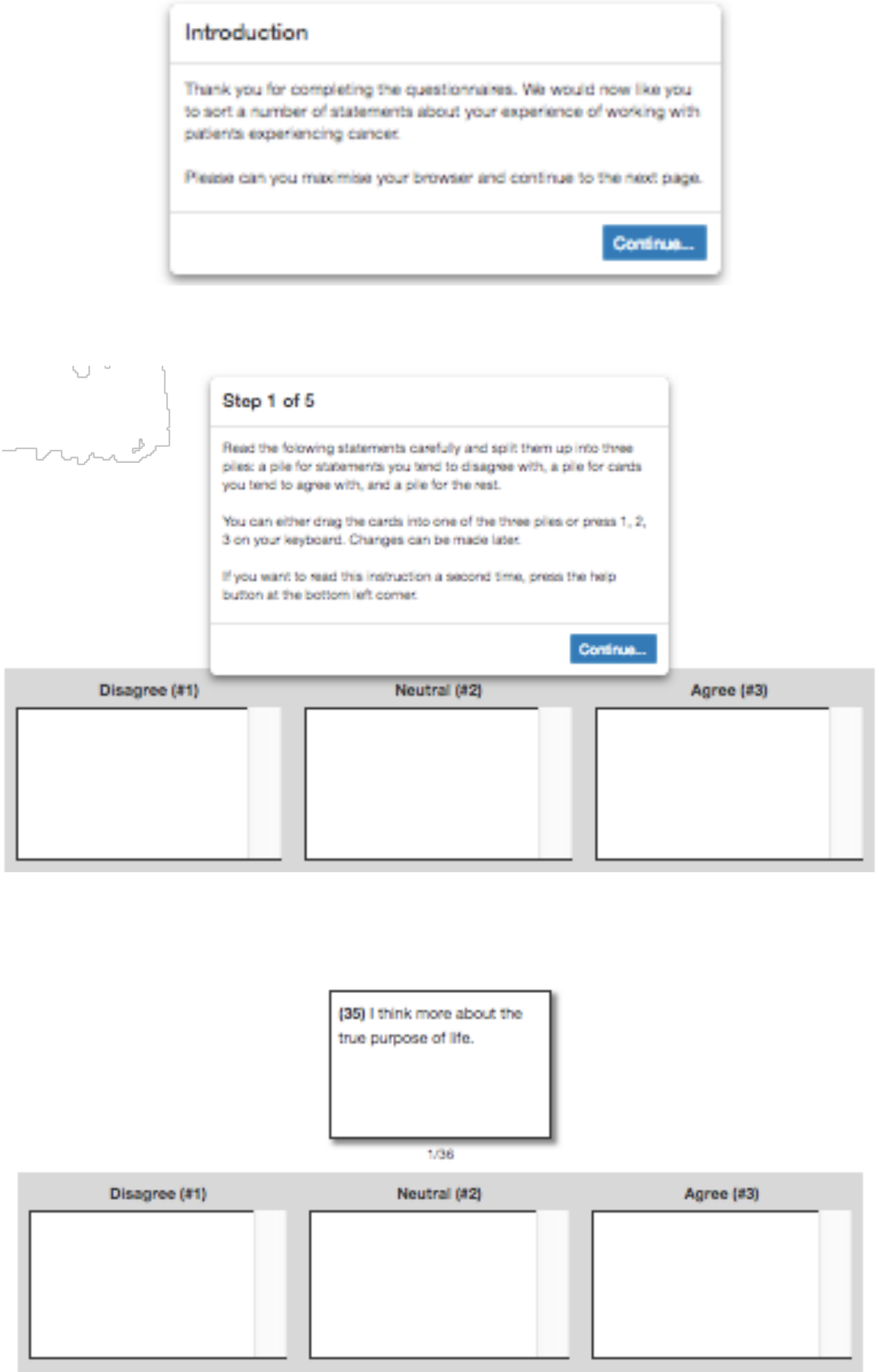
Post Traumatic Growth Inventory

Indicate for each of the statements below the degree to which this change occurred in your life as a result of working with patients experiencing cancer:

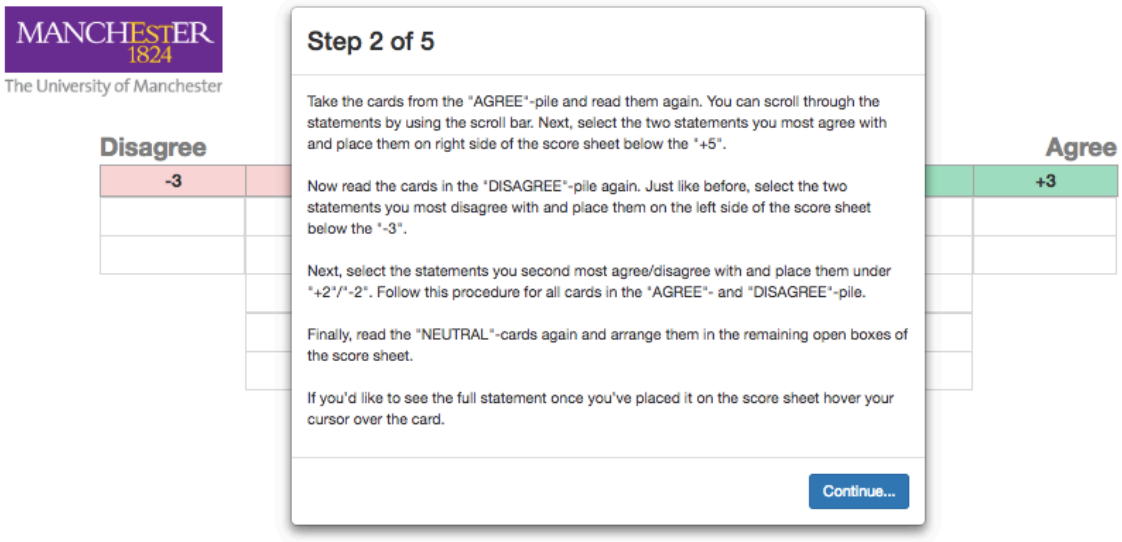
	No Change	Very Small Change	Small Change	Moderate Change	Great Change	Very Great Change
I changed my priorities about what is important in life.	○	○	○	○	○	○
I have a greater appreciation for the value of my own life.	○	○	○	○	○	○
I developed new interests.	○	○	○	○	○	○
I have a greater feeling of self-reliance.	○	○	○	○	○	○
I have a better understanding of spiritual matters.	○	○	○	○	○	○
I more clearly see that I can count on people in times of trouble.	○	○	○	○	○	○
I established a new path for my life.	○	○	○	○	○	○
I have a greater sense of closeness with others.	○	○	○	○	○	○
I am more willing to express my emotions.	○	○	○	○	○	○
I know better that I can handle difficulties.	○	○	○	○	○	○
I am able to do better things with my life.	○	○	○	○	○	○
I am better able to accept the way things work out.	○	○	○	○	○	○
I can better appreciate each day.	○	○	○	○	○	○
New opportunities are available which wouldn't have been otherwise.	○	○	○	○	○	○
I have more compassion for others.	○	○	○	○	○	○
I put more effort into my relationships.	○	○	○	○	○	○
I am more likely to try to change things which need changing.	○	○	○	○	○	○
I have a stronger religious faith.	○	○	○	○	○	○
I discovered that I'm stronger than I thought I was.	○	○	○	○	○	○
I learned a great deal about how wonderful people are.	○	○	○	○	○	○
I better accept needing others.	○	○	○	○	○	○

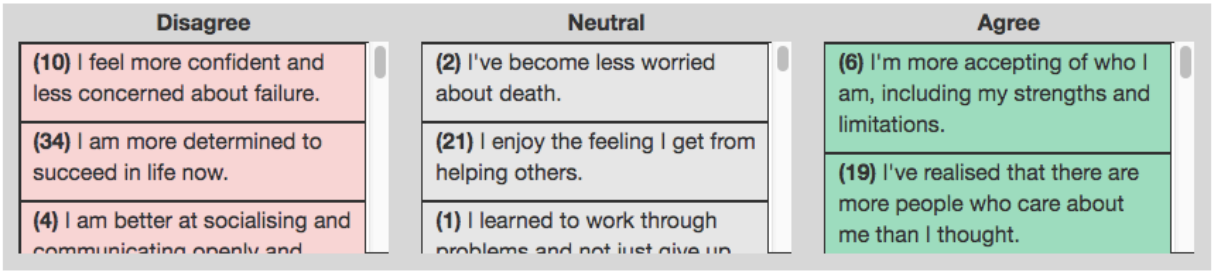
Continue

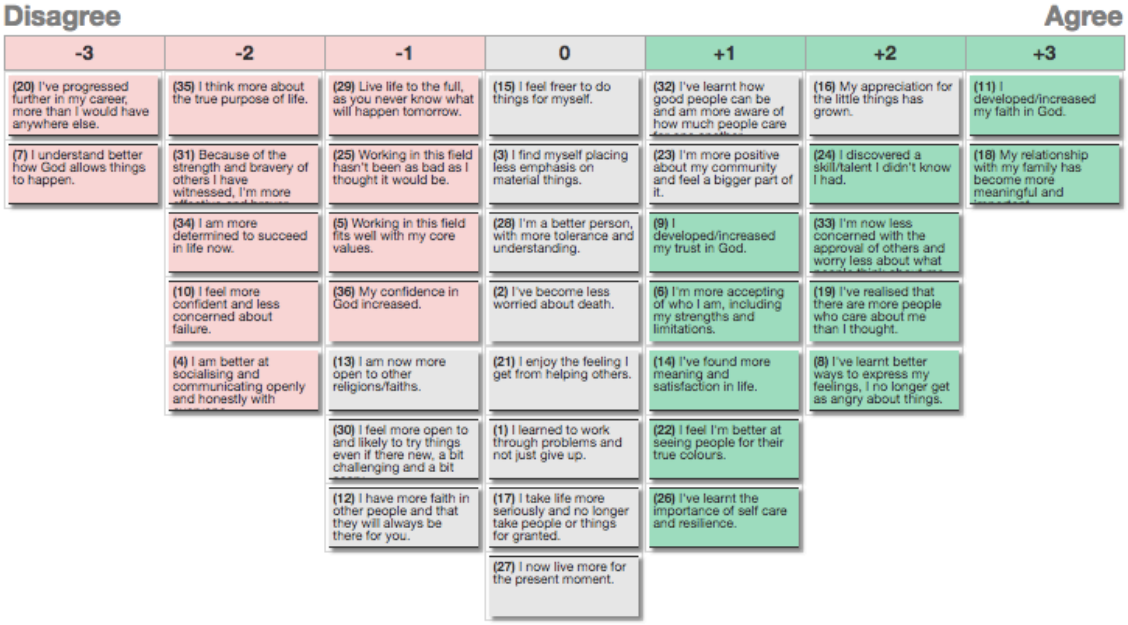
Appendix 6f – Q sort (disagree, neutral, agree)



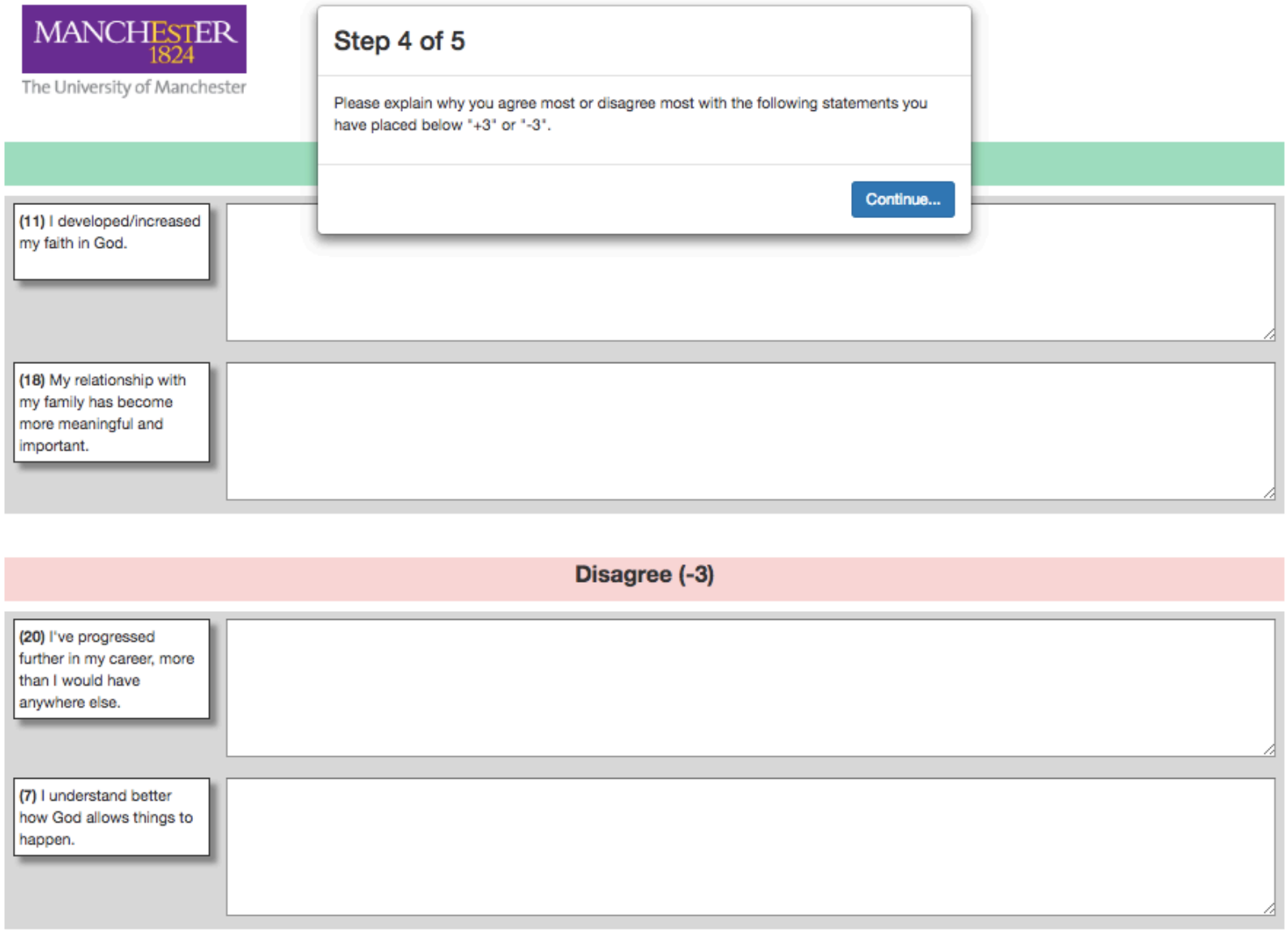
Appendix 6g – Q sort







Appendix 6h – Q sort qualitative rationale



Appendix 6i – Debrief Form

Thank you for participating in this study.

The aim of this study is to understand how vicarious post traumatic growth (VPTG) is experienced in those that work with people and families experiencing cancer. Specifically, I am interested in understanding what impacts VPTG, such as, time in service and personal experiences.

Feedback
If you wish to receive the overall results of the study please contact me by email millsD3@cardiff.ac.uk. I am unable to give individual results. At the end of the study the findings may be submitted to a peer-review journal for publication e.g. psycho-oncology, or British Journal of Health Psychology.

Support
In the unlikely event that you experience distress after taking part in this study, please speak to your line manager, or VCC Psychology Department (02920196141).

Other sources of support can be found at:
Your GP surgery
Samaritans UK:116 123
Mind: 0300 123 3393

Appendix 7 – Permission to use the PTGI

Re: PTGI Measure

PG **plewis19@uncc.edu <plewis19@uncc.edu>** on behalf of **Posttraumatic Growth <posttraumaticgrowth@uncc.edu>**
Deborah Mills
Friday, 11 May 2018 at 1:44 pm
Show Details

PTGI and Other Scal...
183.2 KB

Download All Preview All

Dear Ms. Mills,

You have our permission to use the PTGI in your thesis. Should you need a copy, you will find it attached--along with a more comprehensive PTG model.

Thank you for your interest!

Warm regards,

Posttraumatic Growth Research Center
UNC Charlotte
Department of Psychology
9201 University City Blvd
Charlotte, NC 28223-0001 USA
Lawrence G. Calhoun (lcalhoun@uncc.edu)
Richard G. Tedeschi (rtedesch@uncc.edu)
Arnie Cann (acann@uncc.edu)
www.ptgi.uncc.edu
http://www.routledgementalhealth.com/books/details/9780415645300/.

On Fri, May 4, 2018 at 6:21 AM, Deborah Mills <MillsD3@cardiff.ac.uk> wrote:

> Dear Sir/Madam
>
> I'm conducting my doctoral thesis in clinical psychology within the area of vicarious post traumatic growth in oncology staff. Would I be able to have permission to use the PTGI? I would also like to include a diagram of the PTG model alongside a diagram of the organismic valuing theory. I have attached a diagram of the PTG model, would you be happy for me to use this diagram or is there a more appropriate one?
>
> Many Thanks
>
> Debbie Mills
> Trainee Clinical Psychologist
> Cardiff University

Appendix 8 – Permission to use the ProQOL

RE: Request Permission to Use the ProQOL

ProQol <proqol@CVT.ORG>
ProQol
Wednesday, 9 May 2018 at 3:49 pm
Show Details

Permission_for_Use...
32.7 KB

Download All Preview All

Hello,

The permission request you sent to the ProQOL office (which we will keep on file) and the document attached here together comprise your permission to use the ProQOL. Please consider donating your de-identified baseline data to the ProQOL office if possible, as this helps us maintain the measure.

Please let me know if you have any questions,

Alyce

ProQOL Office

The Center for Victims of Torture

2356 University Ave W., Suite 430 / St. Paul, MN 55114

http://proqol.org / www.cvt.org

CVT: Restoring the Dignity of the Human Spirit

Permission for Use of the ProQOL (Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue) www.proqol.org

Accompanied by the email to you, this document grants you permission to use for your study or project

The ProQOL (Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue) www.ProQOL.org

Prior to beginning your project and at the time of any publications, please verify that you are using the latest version by checking the website. All revisions are posted there. If you began project with an earlier version, please reference both to avoid confusion for readers of your work.

This permission covers non-profit, non-commercial uses and includes permission to reformat the questions into a version that is appropriate for your use. This may include computerizing the measure.

Please print the following reference or credit line in all documents that include results gathered from the use of the ProQOL.

Stamm, B. H. (2010). The ProQOL (*Professional Quality of Life Scale: Compassion Satisfaction and Compassion Fatigue*). Pocatello, ID: ProQOL.org. retrieved [date] www.proqol.org

Permission granted by
Beth Hudnall Stamm, PhD
Author, ProQOL
ProQOL.org
info@proqol.org

Help us help all of us. Please consider donating a copy of your raw data to the data bank. You can find more about the data bank and how you can donate at www.proqol.org and www.proqol.org/Donate_Data.html. Data donated to the ProQOL Data Bank allow us to advance the theory of compassion satisfaction and compassion fatigue and to improve and norm the measure itself.

Appendix 9 - Poster Presentation

GIG CYMRU NHS WALES

Canolfan Ganser Felindre Velindre Cancer Centre

School of Psychology
Ysgol Seicoleg

CARDIFF UNIVERSITY
PRIFYSGOL CAERDYDD

Vicarious Post-Traumatic Growth; A Psychological Sequelae of Working in Oncological Services

Dr Anne Johnson
Consultant Clinical Psychologist
Velindre Cancer Centre

Deborah Mills
Trainee Clinical Psychologist
School of Psychology, Cardiff University

Dr Dougal Hare
Research Director
School of Psychology, Cardiff University

Background and Aims/hypothesis

- **Health professionals are frequently exposed to a range of occupational traumas, from listening to the stories of abuse survivors, to supporting families after the sudden death of a loved one. It's becoming increasingly recognised that there is a 'cost to caring' (Figley, 1995).**
- **It is less widely recognised that many professionals sustain a high level of functioning while continuing to fulfil these challenging roles (Cohen & Collens, 2013).**
- **VPTG is the process in which people derive meaning and personal growth through the trauma experienced by another individual (Arnold *et al.*, 2005). It is important to gather health professional's experiences of VPTG and explore its relationship with health professional's wellbeing.**

Study 1

Q Methodology

- Q methodology (Stephenson, 1953) is a unique qualitative quantitative hybrid.
- 37 statements for the Q-sort were developed to reflect the themes of VPTG from current literature, as well as, from a focus group with professionals working in a specialist cancer centre.
- 28 professionals working in a specialist cancer centre completed online Q-sorts, to represent their own unique view of VPTG.
- Results from a factor analysis indicated a two factor solution, with one Q-sorts which did not load on to either factor, indicating an idiosyncratic view point.

Study 2

Quantitative Methodology

40 staff members working in a specialist cancer centre completed an online:

- Demographics questionnaire.
- Professionals Quality of Life Scale (ProQOL; Stamm, 2010), which measures burnout, secondary traumatic stress (STS) and compassion satisfaction.
- An adapted version of the Post-Traumatic Growth Inventory (PTGI; Tedeschi and Calhoun, 1996).

- Results from the ProQoL, PTGI and demographical information were analysed via descriptive, correlation and regression statistics.

Results

Factor 1. *'Enriching and Exposing to the Transience of Life'*

Factor 1 represented 59% of the participants viewpoints. Staff loading on to this factor regarded working with patients experiencing cancer as a benevolent job, in keeping with their core values. Staff also highly rated enjoying the feeling they gain from helping others. The other theme most agreed with was appreciation for life, with some expressing more appreciation for the little things. Staff disagreed with theme spiritual change, explaining that they never understand how bad things happen to good people.

-3	-2	-1	0	1	2	3
7	11*	23	17	32*	5	21
36*	9	13	25	20	29	16
	2	10*	19*	26	3	
	15	12	24	30	18	
	8	33	1	6	28	
		35	31	22		
		27	34	14		
			4*			

Factor 2. *'Connection neighbouring Disconnection'*

This factor represented 41% of the participants viewpoints. Again staff acknowledged a greater sense of appreciation for life, however this viewpoint disagreed more with the themes of new possibilities and relating to others. This factor represented the complex relationships of working with cancer, but also living in the 'normal' world. Staff reflected that they felt more connected with family members and that these relationships had become more meaningful; however, staff also expressed the view that they felt disconnected from the community.

-3	-2	-1	0	1	2	3
36*	7	28	30	34	27	18
9	13	24	6	35	26	29
	11*	20	4*	1	14	
	23	10*	5	32*	33	
	12	22	3	31	16	
		2	8	21		
		25	15	17		
			19*			

REF: Numbers in the boxes above represent statement numbers
* Significant consensus statements
Appreciation of Life | Relation to other | Personal Strength
Spiritual Change | New Possibilities | Other

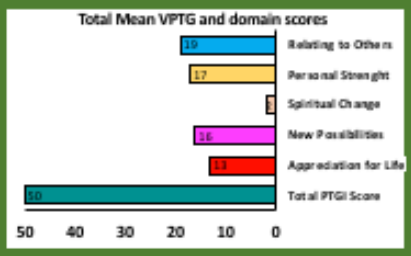
Results

Average VPTG

LOW Burnout

LOW STS

HIGH Compassion Satisfaction



More experience = More VPTG
Direct contact = More VPTG

Low levels of burnout correlated with higher VPTG scores.

High levels of compassion satisfaction correlated with higher VPTG scores. Compassion satisfaction was also the only predictor variable of VPTG after stepwise regression.

Conclusions

Conclusions - Health professionals working in a specialist cancer service reported experiencing a range of VPTG. Across the two studies most reported a change in appreciation for life. The relationships between VPTG and burnout, also compassion satisfaction supported findings by Taku (2014) and Frey et al., (2017). These results will contribute to the emerging VPTG evidence base and indicate important links between VPTG and ProQOL. Clinical implications include the integration of VPTG into training, supervision and staff support structures, such as, psychological therapies accessible to staff and Schwartz rounds.

References