

**Vicarious traumatic exposure among New Zealand health professionals: An exploration  
of coping strategies and vicarious posttraumatic growth**

A thesis presented in partial fulfilment of the degree of

Doctor of Clinical Psychology

at Massey University, Wellington,

New Zealand

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2016

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## Abstract

The negative effects of working with trauma survivors have been well documented. This thesis provides an exploration of the less researched positive psychological effects of such work, termed *vicarious posttraumatic growth* (VPTG). Specifically, the research aimed to investigate New Zealand health professionals' use of coping strategies (social support, self-care, and humour) following vicarious traumatic exposure, how these coping strategies influenced the psychological outcome of vicarious traumatic exposure, and how VPTG related to *secondary traumatic stress* (STS). It was also of interest whether all types of health professionals coped with, and psychologically reacted to, vicarious traumatic exposure in the same way, or if there were differences between professions.

A total of 365 health professionals participated in the current research by completing a quantitative online survey. The final sample consisted of 103 social workers, 76 nurses, 72 counsellors, 70 psychologists, and 44 medical doctors. Humour, self-care, and peer social support were found to be positive predictors of VPTG, while self-care and social support from family and friends were negative predictors of STS. In addition, peer support was found to be a partial mediator of the relationship between vicarious traumatic exposure and STS. Social workers were found to have the highest levels of STS and VPTG, while psychologists were found to have the lowest levels. Regarding coping, generally psychologists and counsellors were found to engage in the highest levels of coping strategies, while nurses and doctors reported the lowest levels. However, the opposite pattern was found for peer support; nurses reported a significantly higher level of peer support than psychologists. Finally, a curvilinear relationship was found between STS and VPTG; moderate levels of STS were associated with the highest levels of VPTG. However, this was only the case among psychologists; among all other professions STS did not correlate with or predict VPTG. Implications of these results are discussed.

Investigation into the relationship between humour and VPTG, exploration of coping strategies as mediators, and the systematic investigation of differences between different types of health professionals represent current gaps in the literature. In addition, exploration of the relationship between VPTG and STS represents an under-researched area with mixed results. Therefore, the current research is an important contribution to the current body of literature. It is envisaged that conclusions drawn from this research will have beneficial implications for health care professionals and the organisations they work within.

## Acknowledgements

Many people have supported me to complete this thesis. First and foremost I must thank all those health professionals who participated in this research. Your time and effort has been very much appreciated, and I hope that I can give something back to you all, through the findings presented here.

To my primary supervisor Ian de Terte, thank you for your support and guidance over the past two years. You have been constantly encouraging and constructive, and I have appreciated your frequent check-ins and our valuable discussions. To my secondary supervisor Chris Stephens, thank you for your immensely valuable feedback and support throughout this process.

To all the “residents” of T4, thank you for keeping me sane throughout this process. Our lunch time discussions were a highlight and will be remembered fondly. Special thanks to Nikki Pine and Tamyra Matthews who shared this process with me so closely and who made themselves constantly available to discuss, share, and problem solve.

Thank you to my parents, Shirley and Stephen Manning, for your support and encouragement, not only over the past few years, but throughout my entire life. Special thanks must also be made to my mother-in-law, Sarah Free, for her willingness to proofread my entire thesis.

Finally, thank you to my husband, Simon, you have been my biggest supporter through this process and helped me to believe that I would (eventually) reach the end.

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## Preface

This thesis is comprised of four manuscripts that have been prepared for submission to academic journals. They investigate health professionals' psychological reactions to vicarious traumatic exposure. While the main focus is on *vicarious posttraumatic growth* (VPTG), that is, psychological benefits of vicarious traumatic exposure, negative psychological effects are also explored. This thesis is constructed around three main foci;

- A) The role of coping strategies following vicarious traumatic exposure, and how these influence health professionals' psychological reactions to vicarious traumatic exposure.
- B) Differences in the way types of health professionals react to, and cope with, vicarious traumatic exposure.
- C) The relationship between positive (VPTG) and negative (secondary traumatic stress, STS) psychological reactions to vicarious traumatic exposure.

In Chapter One a theoretical overview of the posttraumatic growth construct is presented. Chapter Two provides a systematic review of the VPTG literature; it is presented as the first manuscript in this thesis in order to provide readers with a solid understanding of VPTG and the available literature, before the current research is presented. In Chapter Three the aims and a brief rationale of the current research are provided; a more comprehensive rationale is presented in each empirical manuscript. Methodological, statistical, and ethical considerations are also presented in Chapter Three. Chapter Four reflects the first of the aforementioned foci of this thesis; a manuscript that investigates the way in which coping strategies may influence the psychological outcome of vicarious traumatic exposure, through regression and mediation analyses, is presented. In Chapter Five the second focus of this thesis, a systematic investigation of differences between five different groups of health professionals, is presented. A final manuscript that explores the relationship between VPTG

and STS among the overall sample and each individual profession is presented in Chapter Six. Results are synthesised in a concluding chapter (Chapter Eight), and implication of results, limitations, and directions for future research are discussed. A personal reflection on the process of conducting this research is also presented in this chapter.

With the exception of page numbers and in-text figures and tables, manuscripts are presented in submission format. A single reference list is provided at the back of this thesis, rather than accompanying each manuscript, in order to maintain a coherent flow across the entire thesis. Figures and tables are numbered with the chapter number first, then the figure or table number, for example 1.1, to avoid confusion between manuscripts. Attempts were made to keep repetition across manuscripts to a minimum; however, some repetition was unavoidable in order to ensure each manuscript was suitable for publication. Where text is repeated for the second time (e.g., the method section of manuscripts), it is presented in grey rather than black typography. If data is presented in more than one manuscript (e.g., mean values for key variables of interest), a specific note is made to alert readers to this repetition.

## Chapter One: Introduction

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Health professionals are vicariously exposed to a range of potentially traumatic events (Cornile & Woodard Meyers, 1999; Crabbe, Bowley, Boffard, Alexander, & Klein, 2004). These include rape, sexual abuse, facial injuries, shootings, stabbings, motor vehicle accidents, attempted or completed suicide, and disasters (Crabbe et al., 2004). With up to 80% of the general population experiencing a traumatic event within their lifetime (de Vries & Olf, 2009), vicarious exposure to trauma could be considered relatively common among health professionals. In fact, one study estimated that participating health professionals had vicariously experienced an average of seven traumatic events across their careers (Cornile & Woodard Meyers, 1999). The negative effects of vicarious traumatic exposure have been well established (e.g., Steed & Downing, 1998); however, research also suggests that vicarious traumatic exposure can result in positive personal change for health professionals. Enhanced interpersonal relationships, spiritual growth, greater personal strength, and positive changes to values and priorities are just some of the benefits health professionals report (e.g., Barrington & Shakespeare-Finch, 2013). This phenomenon has been termed *vicarious posttraumatic growth* (VPTG).

### **Theoretical overview of posttraumatic growth**

Posttraumatic growth refers to positive cognitive, emotional, interpersonal, and spiritual changes that may occur following a traumatic event (Tedeschi & Calhoun, 1996; 2004). It is best conceptualised as a multi-component phenomenon, with three broad categories: changes in self-perception, changes to interpersonal relationships, and changes in one's life philosophy (Calhoun & Tedeschi, 1999; Joseph & Linley, 2005; Tedeschi & Calhoun, 1996). Specifically, Tedeschi and Calhoun (1996) argued growth can occur in five distinct areas; an improvement in relating to others, greater personal strength, positive

spiritual change, a greater appreciation of life, and discovering new possibilities. This section provides an overview and synthesis of the three most prominent posttraumatic growth theories.

### **Tedeschi and Calhoun's Cognitive Processing Theory**

The core premise of the Cognitive Processing Theory (Calhoun & Tedeschi, 1998, 2001; Tedeschi & Calhoun, 2004) is that posttraumatic growth originates from the way a traumatic event is cognitively processed. According to this theory, everyone lives by a set of assumptions or cognitive schemas that explain the outside world and provide them with meaning and purpose in their lives. When a traumatic event is experienced, these schemas can become shattered; they are no longer adequate to explain life events. In order to develop new schemas, individuals must cognitively process the traumatic event. Initially, cognitive processing is automatic and occurs in the form of intrusive rumination. In order for posttraumatic growth to occur, Calhoun and Tedeschi (1998) argue that rumination must become purposeful; for example, individuals must engage in meaning making (Martin & Tesser, 1996), problem solving (Martin & Tesser, 1996), or goal setting (Tedeschi & Calhoun, 2004). Effortful rumination leads survivors to characterise the trauma as a turning point in their lives, they are then able to develop new schemas and assumptions about their post-trauma world. It is this process that allows the development of posttraumatic growth to occur.

The Cognitive Processing Theory (Calhoun & Tedeschi, 1998, 2001; Tedeschi & Calhoun, 2004) highlights several important factors that contribute to the development of posttraumatic growth. First, the traumatic event must be distressing enough to shatter the survivors pre-existing assumptions. While it is not the event itself that cultivates posttraumatic growth, the shattering of assumptions provides a necessary platform on which posttraumatic growth develops. Second, certain personality characteristics such as openness,

extraversion, and optimism can enhance one's likelihood of developing posttraumatic growth, perhaps because individuals with these traits have a heightened awareness of positive emotions, have a greater capacity to process trauma-related information, or are more able to focus their attention and resources on what is important to them and extricate themselves from problems beyond their control (Aspinwall, Richter & Hoffman, 2001; Tedeschi & Calhoun, 2004). Third, the Cognitive Processing Theory argues that it is important that survivors demonstrate some ability to cope with the initial distress that can result following a traumatic event. Without an initial level of coping, individuals are unable to engage in the effortful meaning making processes that are crucial to the development of posttraumatic growth. Finally, social support plays a very important role in the cognitive processing theory of posttraumatic growth. Supportive others provide an opportunity for survivors to develop trauma narratives regarding the changes that have occurred since the event, and also can offer new perspectives on the situation (Neimeyer, 2001; Tedeschi & Calhoun, 1996). According to Tedeschi and Calhoun, these factors all impact the process of posttraumatic growth and can either increase or decrease the likelihood of its development.

### **Linley and Joseph's Organismic Valuing Theory**

Organismic Valuing Theory (Joseph & Linley, 2005, 2008) is an integrative framework of posttraumatic growth grounded in an existential, humanistic, and person-centred philosophy. It is governed by the fundamental premise that human beings are constantly striving towards higher levels of psychological functioning. According to this theory, humans have an innate ability to know what is important to enhance their wellbeing. People constantly evaluate their experience; when they sense that it is not fulfilling their needs they are motivated to take action. When applied to one's cognitive experience

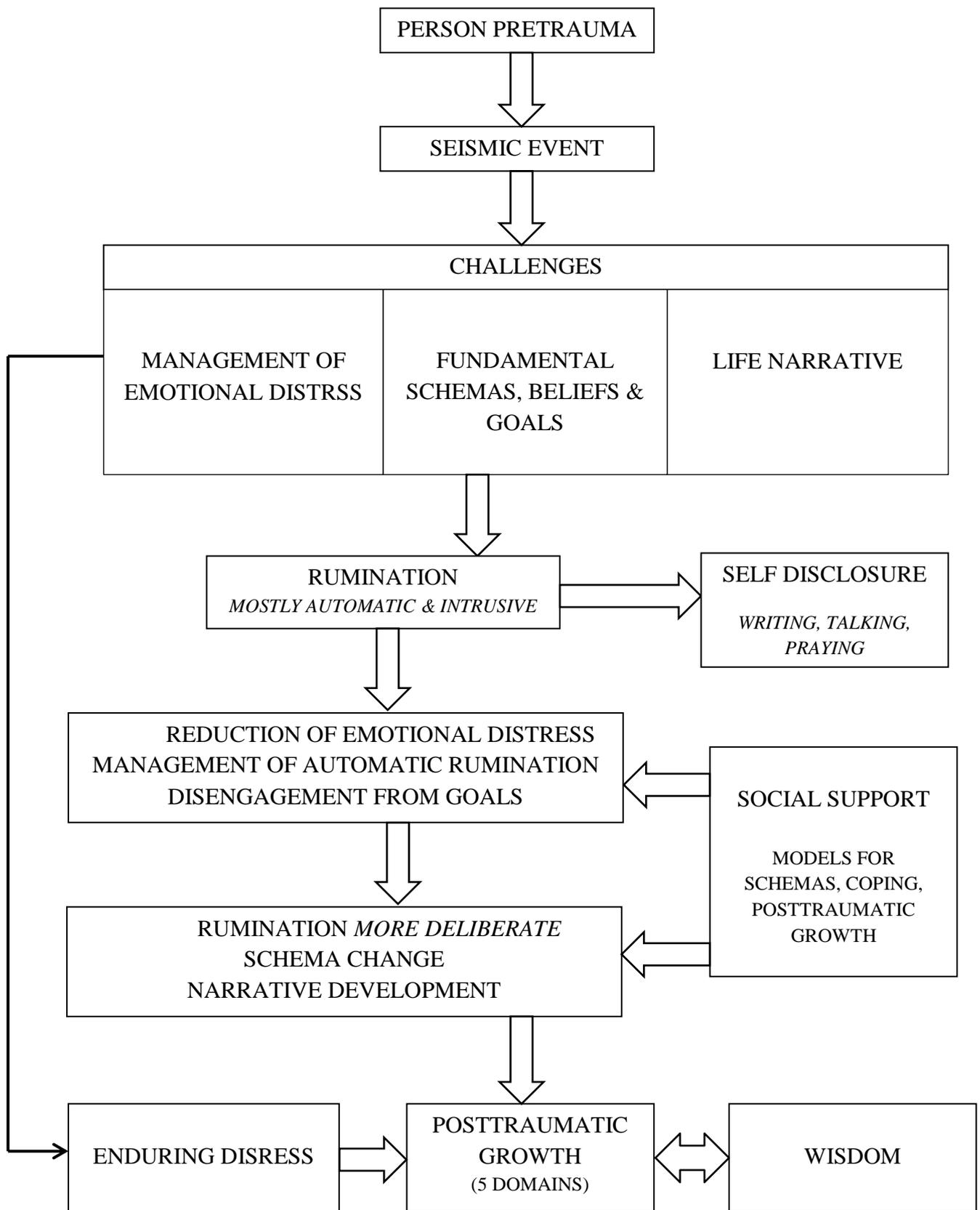


Figure 1.1. A model depicting the Cognitive Processing Theory of posttraumatic growth. Reprinted from “Post-traumatic growth: Conceptual foundations and empirical evidence” by R. G. Tedeschi and L. G. Calhoun, 2004, *Psychological Inquiry*, 15(1), p. 7. Copyright (2004) by Lawrence Erlbaum Associates, Inc. Reprinted with permission.

following a traumatic event, Joseph and Linley (2005, 2008) argue that this theory is able to explain why some people appear unaffected by a traumatic event, why others are negatively affected, and why a third group demonstrate posttraumatic growth.

Like the Cognitive Processing Theory (Calhoun & Tedeschi, 1998; Tedeschi & Calhoun, 2001, 2004), Organismic Valuing Theory begins with the assertion that every individual holds assumptions about themselves and the world around them, and that a traumatic event can cause these assumptions to become shattered (Joseph & Linley, 2005; 2008). When this happens, individuals are likely to experience symptoms of distress, such as avoidance and intrusive thoughts, which indicates the need for the event to be cognitively processed. At this point, one of three possible outcomes occur. First, one may *assimilate* the traumatic event into their existing schemas; that is, information about the traumatic event is shaped to fit ones existing beliefs. This is likely to be the most common course of action; it is the easiest and allows people to move on quickly from the traumatic event (Joseph & Linley, 2005). However, Joseph and Linley (2005) argued that it also leaves the person vulnerable to future posttraumatic distress. Second, *negative accommodation* may occur whereby the individual changes their beliefs about themselves and the world in a negative fashion, in order to account for the traumatic event. This can result in the individual developing feelings of helplessness and hopelessness. Third, the individual may change their beliefs about themselves and the world in a positive direction, that is, *positive accommodation* may occur. This results in positive changes to ones relationships, self-perception, life philosophy, and is thought to enhance one's psychological well-being. This third outcome describes the phenomenon of posttraumatic growth. Whether someone assimilates, negatively accommodates, or positively accommodates trauma information is affected by their social environment, their personality, their previous traumatic history, and the way that they have

processed these past traumatic events. This theory offers an explanation as to why two people may have very different outcomes following the same traumatic event.

### **Schaefer & Moos' contextual model**

As the name suggests, Schaefer and Moos' (1998) model of posttraumatic growth focuses on contextual factors that influence the likelihood of posttraumatic growth developing, rather than survivors' internal experience (although cognitive appraisal does feature). Figure 1.2 visually depicts this conceptual model.

To summarise, Schaefer and Moos (1998) argued that environmental factors, personal resources, characteristics of the crisis, cognitive appraisal, and coping strategies are important determinants of posttraumatic growth. Environmental factors include interpersonal relationships, social support, financial stability, and community. Schaefer and Moos suggested that social resources act as a precursor to posttraumatic growth by enhancing a survivor's ability to engage in effective coping strategies and help them to develop a more positive perspective regarding the traumatic event. Factors that influence the amount of social support available to survivors include the severity of the trauma, the number of life changes recently experienced, and the size of ones pre-existing support network (Kaniasty & Norris, 1995). Community groups can foster posttraumatic growth by providing additional social support (e.g., through support groups) and enhance family communication which can facilitate healing (Schaefer & Moos, 1998). The nature of the post-crisis environment is also important, for example if the trauma produces chronic acute stressors, opportunities for posttraumatic growth may be reduced, whereas traumas that produce a sense of "starting again" may be particularly conducive to growth.

Personal factors that can influence posttraumatic growth development include demographic characteristics, socioeconomic factors, character strengths, and prior traumatic experiences. Sociodemographic characteristics that promote social support (e.g., marital

status) and maturity can facilitate posttraumatic growth, as can personality characteristics such as optimism, self-confidence, and an easy-going disposition. In addition, having successfully overcome previous traumatic events can facilitate posttraumatic growth following subsequent traumas due to an increased sense of self-efficacy and enhanced coping (Schaefer & Moos, 1998). Overall, personal factors are likely to facilitate posttraumatic growth through their influence on cognitive appraisal and adaptive coping following a traumatic event (Holahan & Moos, 1991; Moos & Schaefer, 1993; Schaefer & Moos, 1998). Finally, cognitive appraisal and coping are important factors in this model. Posttraumatic growth is more likely to occur when survivors appraise the traumatic event as a challenge that can be overcome, rather than a threat to their safety. Appraisal can be influenced by the availability of personal and social resources, and in turn can affect the type of coping strategies used. Overall, research has suggested that those individuals who engage in active coping strategies achieve better outcomes following trauma (Moos & Schaefer, 1993). Schaefer and Moos (1998) suggested that searching for meaning in a traumatic event, actively trying to gain control, reflecting upon interpersonal relationships, and reviewing their lives may be coping strategies particularly conducive to posttraumatic growth.

### **A synthesis of posttraumatic growth theory**

While each of these three theories has a slightly different focus, there are common elements. First, the traumatic event must have an impact on the survivor's preconceived beliefs about themselves and the world. Without this, survivors would have no need to engage in the cognitive processing that appears to act as a catalyst for posttraumatic growth. However, it also appears important that survivors engage in some form of early coping; they must not be so affected by the trauma that this is not possible. Second, it appears that the way survivors appraise and cognitively process the traumatic event is a crucial factor in their likelihood of developing posttraumatic growth. A synthesis of these three models would

suggest that someone who views the trauma as a challenge that can be overcome, who actively ruminates on the event, and ultimately changes their beliefs about themselves and the world in a positive or adaptive direction will be most likely to develop posttraumatic growth.

Finally, contextual factors also play an important role. Someone who has a large social support network; is self-confident, optimistic, open and extraverted; and has successfully overcome challenges in the past, to name a few, will have a greater chance of developing posttraumatic growth than someone without these strengths.

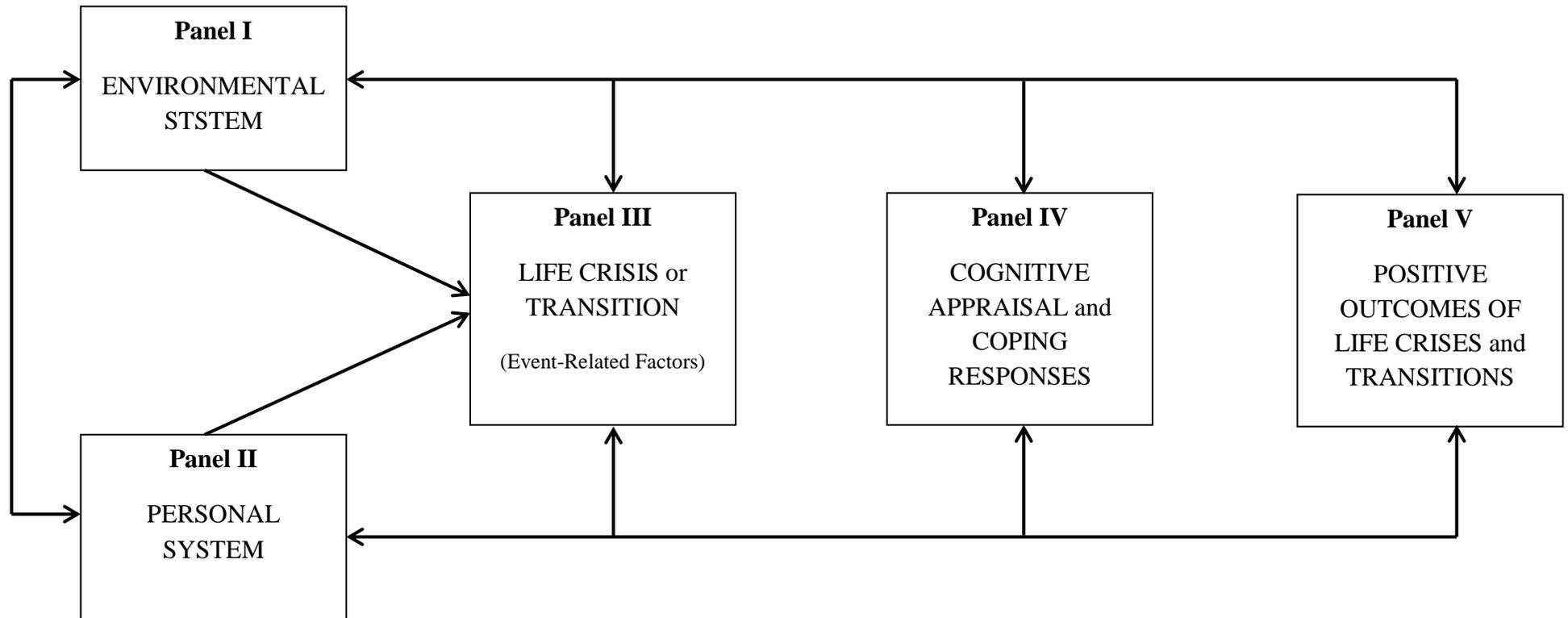


Figure 1.2. A conceptual model of posttraumatic growth. Reprinted from *Posttraumatic growth: Positive changes in the aftermath of crisis* (p. 100), by J. A. Schaefer and R. H. Moos, 1998, Mahwah: Lawrence Erlbaum Associates Publishers. Copyright (1998) by Lawrence Erlbaum Associates, Inc. Reprinted with permission.

## **Chapter Two**

### **Vicarious Posttraumatic Growth: A Systematic Literature Review**

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This chapter is in the form of a manuscript to be submitted to an academic journal. It provides a review of the current VPTG literature. It is presented as the first manuscript in this thesis in order to provide readers with a solid foundation of VPTG, and knowledge of the currently available literature, before moving into the empirical results of the current research.

### **Abstract**

Twenty-eight articles are included in this review, which provides the first comprehensive review of the vicarious posttraumatic growth (VPTG) literature. Five domains are presented. First, assessment methods of VPTG are reviewed; seventeen studies assessed VPTG using a measure designed for use with direct trauma survivors, three used a non-validated measure, and the remaining eight used an open-ended question. Second, the level of similarity between reports of direct and vicarious posttraumatic growth is examined. VPTG was found to be highly similar to direct posttraumatic growth; however, subtle differences between the two were also identified along with manifestations of growth unique to VPTG. Third, a range of psychological, cognitive, behavioural, interpersonal, and external factors that have been implicated to facilitate VPTG are presented. Fourth, research exploring the relationship between VPTG and secondary traumatic stress is examined. Three possible explanations are presented; a positive linear association, no association, and a more complex curvilinear relationship. Finally, limitations to the current body of knowledge and areas for future research are explored.

### Overview

*Posttraumatic growth* can be characterised as positive cognitive, emotional, interpersonal and spiritual consequences that one may experience following a traumatic event (Tedeschi & Calhoun, 2004). Posttraumatic growth occurs across three domains, self-perception, interpersonal relationships, and life philosophy (Tedeschi & Calhoun, 1996). Specifically, Tedeschi and Calhoun (1996) argued that growth can occur in five distinct ways: an improvement in relating to others, greater personal strength, positive spiritual change, a greater appreciation of life, and discovering new possibilities. Vicarious posttraumatic growth (VPTG) refers to the development of these positive changes as a result of vicarious traumatic exposure (Arnold, Calhoun, Tedeschi, Cann, 2005). The term *vicarious traumatic exposure* has been used in the literature to refer to indirect traumatic exposure, for example exposure to direct trauma survivors and/or the aversive details of a traumatic event, rather than exposure to a traumatic event itself (e.g., Brockhouse, Msetfi, Cohen, & Joseph, 2011). A growing body of literature documents VPTG among health professionals (e.g., Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008a), interpreters (e.g., Splevins, Cohen, Joseph, Murray & Bowley, 2010) and members of the public (e.g., Linley, Joseph, Cooper, Harris, & Meyer, 2003); however, to date a comprehensive evaluation and review of the literature has not been conducted.

Posttraumatic growth has been positively associated with greater life satisfaction (Mols, Vingerhoets, Coebergh, & van de Poll-Franse, 2009), happiness (Lelorian, Bonnaud-Antignac, & Florin, 2010), and general psychological, physical, and emotional wellbeing (Wild & Paivio, 2004). It is reasonable to assume that VPTG also results in such benefits, and therefore it is an area worthy of future research. In order to produce meaningful research, researchers must be aware of all previously published studies. While reviewing the literature, it was evident that this was often not the case, for example a study published in 2014 claimed

only three previous VPTG articles could be identified (Hyatt-Burkhart, 2014). A systematic literature review can be used as a tool to identify current gaps in the literature, limitations, and areas in need of future research. To date, no such review for the VPTG literature has been published. Cohen and Collens (2013) attempted to provide a metasynthesis of the VPTG literature; however, their decision to include only qualitative literature and to simultaneously review vicarious traumatisation limits the applicability of their results. This review aims to organise and evaluate current literature in a way that will guide and encourage future research. It will provide health professionals with a comprehensive synthesis of literature relating to VPTG, and may have practical implications as to how they can further facilitate VPTG in their workplace.

Five domains of existent literature will be reviewed here, chosen for their likelihood to spur future research. These domains are;

1. The measurement of VPTG.
2. The level of similarity between vicarious and direct posttraumatic growth.
3. Facilitating factors of VPTG.
4. The relationship between VPTG and secondary traumatic stress.
5. Current limitations and directions for future research.

### **Literature Search Strategies**

Combinations of the following search terms were entered into the literature databases *Scopus*, *PsycINFO*, and *Psychology and Behavioural Sciences Collection: secondary, vicarious, indirect*, along with *posttraumatic, posttrauma\**, *trauma\**, *adversarial, stress-related, positive transformation, psychological* and *growth*. Searches were repeated in *Science Direct*, but were limited to psychological articles published in 2014 in an attempt to identify articles not yet available on other databases. Searches took place over January and February of 2014. Databases returned a combined total of 3144 unique articles. Abstracts

that suggested a specific focus on VPTG or a synonymous concept (e.g., positive self-transformation, positive psychological change) were further reviewed.

### **Inclusion Criteria**

Articles were included for review if they: a) were printed in a peer reviewed journal, b) were printed in English, c) reported original data, d) outlined a specific focus on VPTG (or a synonymous term), and e) were specifically concerned with vicarious traumatic exposure. Articles were excluded if they: a) referred to a shared reality between participants and direct trauma survivors, b) conducted research with emergency workers or with family members of direct trauma survivors (these individuals were deemed to experience direct rather than vicarious traumatic exposure), and c) were review or metanalysis articles. This resulted in the identification of 24 relevant articles. Reference lists were evaluated using the same criteria, and four additional articles were selected.

### **Selected Articles**

Of the 28 articles identified for review, 19 were quantitative, seven qualitative, and two reported mixed methods. Twenty-five articles conducted research with professionals who experienced vicarious traumatic exposure through their work, for example health professionals, funeral directors, and interpreters. Together, these professionals had been vicariously exposed to a wide range of traumatic events such as war, domestic violence, sexual assault, and the Holocaust. The remaining three articles focused on the general population who had vicariously been exposed to the September 11 terrorist attacks. Table 2.1 provides an overview of the included articles.

Table 2.1.

*Summary of the 28 articles included in the current review.*

<b>Study</b>	<b>Participants</b>	<b>Methodology</b>	<b>Assessment method</b>	<b><i>n</i></b>
Arnold, Calhoun, Tedeschi & Cann (2005)	Psychotherapists	Qualitative: Naturalistic interviews	“How have you been affected by your work with clients who have experienced traumatic events?”	21
Barrington & Shakespeare-Finch (2013)	Clinical and administrative/managerial staff working with refugees	Qualitative: Semi-structured interviews	Open-ended question	17
Ben-Porat & Itzhaky (2009)	Social workers	Quantitative: Survey	PTGI	214
Bentar (2000)	Therapists	Qualitative: Open ended in-depth interviews	Open-ended question	12
Brockhouse, Msetfi, Cohen & Joseph (2011)	Therapists	Quantitative: Survey	PTGI	118
Davis & Macdonald (2004)	General Canadian population	Quantitative: Structured interview	Using a 4-point scale, participants rated the extent to which they felt the event changed: (i) their relationship with family; (ii) their	80

			relationship with friends; and (iii) their values.	
Gibbons, Murphy & Joseph (2011)	Social workers	Quantitative: Survey	PTGI CiOQ	62
Guhan & Liebling-Kalifani (2011)	Support workers	Mixed Methods: Qualitative semi-structured interviews and quantitative self-report questionnaire	Open-ended question	12
Hyatt-Burkhart (2014)	Mental health workers	Qualitative: Semi-structured interviews and focus groups	“How have you been affected by your work with children who have experienced traumatic events?”	12
Kjellenberg, Nilsson, Daukantaitė & Cardeña (2014)	Professionals working with war and torture survivors	Quantitative: Survey	PTGI	69
Lambert & Lawson (2013)	Counsellors	Quantitative: Survey	PTGI	125
Linley & Joseph (2005)	Funeral directors	Quantitative: Survey	CiOQ	78
Linley & Joseph (2007)	Therapists	Quantitative:	PTGI-Short form	156

		Survey	CiOQ	
Linley, Joseph, Cooper, Harris & Meyer (2003)	General British population	Quantitative: Survey	PTGI CiOQ	108
Linley, Joseph & Loumidis (2005)	Therapists	Quantitative: Survey	PTGI CiOQ	85
O'Sullivan & Whelan (2011)	Telephone counsellors	Quantitative: Survey	PTGI	64
Samios, Rodzik & Abel (2012)	Therapists	Quantitative: Survey	PTGI	61
Satkunanayagam, Tunariu & Tribe (2010)	Mental health professionals	Qualitative: Semi-structured interviews	Open-ended question	12
Shamai & Ron (2009)	Social workers	Qualitative: Semi-structured interviews	Open-ended question	29
Shiri, Wexler & Kreitler (2010)	Nurses and rehabilitation teams	Mixed methods: Qualitative Interview and quantitative survey	PTGI	68*
Shiri, Wexler, Alkalay, Meiner & Kreitler (2008a)	Doctors, therapists and nurses	Quantitative: Survey	PTGI	138
Shiri, Wexler, Alkalay, Mainer & Kreitler (2008b)	Hospital rehabilitation workers	Quantitative: Survey	PTGI	31*
Splevins, Cohen,	Interpreters	Qualitative:	Open-ended question	8

Joseph, Murray & Bowley (2010)		Semi-structured interview	e.g., "I'm wondering what it's like for you to listen to your client's stories."	
Swickert, Hittner, DeRoma, & Saylor (2006)	General American population	Quantitative: Survey	PBS	136
Taku (2014)	Physicians	Quantitative: Survey	PTGI- Short Form	289
Taubman-Ben-Ari & Weintroub (2008)	Physicians and nurses	Quantitative: Survey	PTGI	124
Tehrani (2007)	Care workers	Quantitative: Survey	Trauma Belief Inventory	430
Tehrani (2010)	Occupational health advisors, Human resource advisors, Counsellors, Family Liaison officers	Quantitative: Survey	Carer Belief Inventory	276

\*Sample size reflects the number of participants who fit the criteria to be included in this review.

*Note.* PTGI= Posttraumatic Growth Inventory. CiOQ= Changes in Outlook Questionnaire. PBS= Perceived Benefit Questionnaire.

### **Measurement of Vicarious Posttraumatic Growth**

Currently, there is no measure designed specifically to assess VPTG; therefore, all quantitative studies used a measure originally designed for direct trauma survivors. Seventeen

articles assessed VPTG using a validated measure of posttraumatic growth. Eleven articles used a version of the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996), one used the Positive Changes subscale of the Changes in Outlook Questionnaire (CiOQ; Joseph, Williams, & Yule, 1993), four used the PTGI and CiOQ in combination, and one used the Perceived Benefit Scale (PBS; McMillen & Fisher, 1998). These self-report questionnaires required participants to rate their level of agreement with statements describing various psychological and behavioural changes that can follow direct traumatic exposure.

Three studies measured VPTG with non-validated instruments. Davis and Macdonald (2004) measured VPTG using a structured interview; they asked participants to rate the extent to which they had experienced positive change in their relationships and personal values on a 4-point scale. If participants had experienced positive change, follow-up questions on the nature of this change were administered. Tehrani (2007; 2010) measured VPTG using four items (see Table 2.1) originally targeted at assessing positive beliefs. While Tehrani (2007) argued that these items were consistent with the personal strength and appreciation of life subscales of the PTGI, a lack of evidence of convergent validity means results should be interpreted with caution.

The remaining eight studies assessed VPTG using qualitative methods. Non-specific open-ended questions were used to enquire about the impact of vicarious traumatic exposure generally, for example “How have you been affected by your work with clients who have experienced a traumatic event?” (Arnold et al., 2005, p. 245). Specific follow-up questions were administered if descriptions of VPTG were not spontaneously given. If provided, qualitative questions utilised by each study are presented in Table 2.1.

### **Vicarious and direct posttraumatic growth**

From the reviewed articles it was evident that aspects of VPTG were consistent with conceptualisations of posttraumatic growth among direct trauma survivors. Professionals working with refugees experienced changes in their values and priorities, spiritual growth, greater personal strength, and enhanced interpersonal relationships (Barrington & Shakespeare-Finch, 2013), all consistent with Tedeschi and Calhoun's (1996) conceptualisation of direct posttraumatic growth. Similar changes were noted among psychotherapists (Arnold et al., 2005), social workers (Shamai & Ron, 2009), interpreters (Splevins, et al., 2010) and support workers (Guhan & Liebling-Kalifani, 2011).

However, subtle differences were also apparent between these two forms of psychological growth. For example, participants reporting VPTG reflected upon the resiliency of mankind in general (Arnold et al., 2005; Splevins et al., 2010), which is more abstract than the sense of increased personal strength generally reported by direct trauma survivors (e.g., Hefferon, Greal, Mutrie, 2009). In addition, while direct trauma survivors often report personal spiritual growth, therapists reported a type of spiritual broadening, referring to the acceptance of spiritual beliefs as a helpful healing tool following trauma, without experiencing any personal belief changes (Arnold et al., 2005). Therefore, VPTG appears to differ slightly from direct posttraumatic growth; perhaps it is less integrated with a person's self-concept.

In addition, there were aspects of growth unique to VPTG, largely concerning professional identity. Participants spoke of the realisation that their work was valuable, that they had the ability to make a difference in the lives of direct trauma survivors, and that their experience had enhanced their professional capabilities (Barrington & Shakespeare-Finch, 2013; Guhan & Liebling-Kalifani, 2011; Bentar, 2000; Satkunanayagam, Tunariu, & Tribe, 2010; Shamai & Ron, 2009; Splevins et al., 2010). Overall, VPTG made participants feel

more competent in their workplace. This likely reflects the context of participants' vicarious traumatic exposure.

Overall, it appears that direct and vicarious posttraumatic growth are highly similar. However, there are also subtle difference between the two and even manifestations of growth that are unique to VPTG, distinguishing the two constructs and representing their differing origins. VPTG could be considered to fall under the larger "umbrella" of posttraumatic growth, but should also be seen as a distinct concept that differs from direct posttraumatic growth in ways that will have important implications for the way it is reported and assessed.

### **Factors that facilitate the development of VPTG**

A range of factors were identified to facilitate the development of VPTG from the 28 reviewed articles. These are discussed below within the following categories: cognitive and psychological, behavioural, interpersonal, and external variables.

#### **Cognitive and psychological variables**

Empathetic engagement was identified as an important factor in the development of VPTG. Several articles reported a positive association between these two variables (Brockhouse et al., 2011; Linley & Joseph, 2007), and qualitative studies described how experiencing empathy for direct survivors spurred participants own psychological growth (Shamai & Ron, 2009; Splevins et al., 2010). It appears that empathetic engagement enables helping professionals to metaphorically apply the traumatic event to their own lives, facilitating VPTG (Linley & Joseph, 2007; Shamaï & Ron, 2009; Splevins et al., 2010). However, no relationship was found between empathy and VPTG among telephone counsellors (O'Sullivan & Whelan, 2011) or those vicariously exposed to the September 11 terrorist attacks (Davis & Macdonald, 2004). One possible explanation may be that empathy is only positively associated with VPTG once it exceeds a certain level; studies that reported a positive relationship between empathy and VPTG also reported higher levels of empathy than those that reported no significant relationship (Brockhouse et al., 2011; Linley & Joseph,

2007; O'Sullivan & Whelan, 2011). Alternatively, perhaps telephone counsellors and those exposed to the September 11 terrorist attacks via the media felt limited in their capacity to help the direct trauma survivors. This may have acted as a moderating variable on the relationship between empathy and VPTG, reducing the positive association. Further research is needed to ascertain the nature of the relationship between empathy and VPTG.

Optimism and positive affect were also identified as factors conducive to VPTG. Having positive and optimistic beliefs about the future and about the benefits of suffering were positively associated with aspects of VPTG among nurses and rehabilitation workers (Shiri, Wexler, & Kreitler, 2010). Linley and Joseph (2005) reported that those funeral directors with the highest levels of positive affect also reported the greatest levels of VPTG. It may be that positive affect and optimism facilitate the identification of positive outcomes following vicarious traumatic exposure.

In contrast, negative affect was also found to be a salutary factor. Among their sample of funeral workers, Linley and Joseph (2005) found negative affect to positively correlate with VPTG. This likely reflects the fact that it is necessary to experience devastation and distress following vicarious traumatic exposure before one is able to develop VPTG (Davis & Macdonald, 2004). The reality that one must experience the negative psychological effects of vicarious traumatic exposure before VPTG is possible (Davis & Macdonald, 2004) is consistent with the finding that VPTG is related to both negative and positive affect.

Having a sense of satisfaction, competence, and value in one's work was found to enhance VPTG. Among nurses and physicians, professional self-esteem, defined as the level at which professional competence, performance, and value are evaluated (Carmel, 1997), was positively associated with VPTG (Taubman-Ben-Ari & Weintroub, 2008). In addition, compassion satisfaction, defined as a sense of pleasure or satisfaction gained from one's job (Stamm, 2005), and self-perceived value of one's work were positively associated with

VPTG among social workers (Gibbons, Murphy, & Joseph, 2011). However, this was not the case among professionals working with war and torture survivors, despite similar levels of compassion satisfaction being recorded (Kjellenberg, Nilsson, Daukantaité, & Cardena, 2013). The reason for these divergent results is unclear. Perhaps working with war and torture survivors was so far removed from the reality of the participants' personal lives that their work, and the satisfaction they got from this, did not transcend into positive personal changes. In contrast, the social workers reported in Gibbon et al.'s (2011) sample may have experienced a greater level of identification with their clients, and therefore the satisfaction they got from their work related to positive personal growth. Further research is needed to investigate this hypothesis.

Mixed results have been reported regarding the relationship between having a strong sense of coherence, defined as "the extent to which the world is seen as comprehensible, manageable, and meaningful" (Brockhouse et al., 2011, p. 736) and posttraumatic growth. Linley, Joseph, and Loumidis (2005) reported this construct to be positively associated with VTPG; however, this was only the case when using the CiOQ- research has not found a positive relationship between sense of coherence and VPTG when utilising the PTGI (Linley & Joseph, 2007; Linley et al., 2005; Samios, Rodzik, & Abel, 2012). In fact, one study found having a strong sense of coherence to *negatively* predict VPTG, perhaps because it enhances resiliency which in turn reduces opportunity for growth (Brockhouse et al., 2011). Overall, the majority of reviewed studies did not support a positive association between sense of coherence and VPTG; however, more research is needed in this area to provide an accurate picture of the relationship between these two constructs.

Among therapists, theoretical orientation was identified as an important factor relating to VPTG. In regards to both therapeutic training and practice orientation, Linley and Joseph (2007) reported that humanistic and transpersonal orientations were positively associated

with VPTG, while cognitive-behavioural training was negatively associated. Linley and Joseph suggest that this likely reflects the philosophy of humanistic and transpersonal therapies, which acknowledges that suffering can provide opportunities for growth and development. They also suggest that therapists practicing cognitive-behavioural therapy are more likely to work with severely traumatised client populations, which may reduce opportunities for VPTG. Further research is needed to explore whether such findings can be replicated and also to elucidate the different relationships between therapeutic intervention and VPTG outcomes.

Finally, there were contradictory findings regarding the relationship between resilience and VPTG. Resilience was positively associated with VPTG among physicians (Taku, 2014); however, beliefs about resilience (e.g., how much participants believed that difficulties can be perceived as challenges to be overcome) negatively predicted the identification of new possibilities, a domain of VPTG, among nurses and rehabilitation workers (Shiri et al., 2010). Perhaps individuals who hold such beliefs about resilience have a positive attitude that enables them to cope in the face of adversity, but also reduces their opportunity for VPTG by minimising the initial impact of the vicarious traumatic exposure. The investigation of resilience itself is a complex area (Windle, 2011); its role in VPTG would be a fruitful area for further investigation.

### **Behavioural variables**

Many of the reviewed studies supported a positive association between engaging in self-care activities and VPTG (Arnold et al., 2005; Barrington & Shakespeare-Finch, 2013; Satkunanayagam et al., 2010; Splevins et al., 2010; Tehrani, 2010). Only one study reported that they did not find a significant positive relationship between self-care and VPTG (Lambert & Lawson, 2013), and this study reported little information on how self-care was defined or assessed. Common self-care activities cited in the reviewed studies include

exercise, healthy eating, engaging in hobbies, prayer, and spiritual and religious activities (Arnold et al., 2005; Barrington & Shakespeare-Finch, 2013; Satkunanayagam et al., 2010; Splevins et al., 2010; Tehrani, 2010). Splevins et al. (2010) argued that self-care activities were active and conscious coping strategies utilised by participants to reduce psychological distress and protect their wellbeing. This process appears to facilitate the development of VPTG.

Personal therapy was also found to enhance the likelihood of experiencing VPTG. Therapists who engaged in personal therapy reported greater levels of VPTG than their non-therapy counterparts (Brockhouse et al., 2011; Linley & Joseph, 2007). Linley and Joseph (2007) argued that this demonstrates the ability for personal therapy, not only to decrease distress, but also to facilitate positive changes and personal growth. It is possible that therapy provides the opportunity to process and find meaning in vicarious traumatic exposure. Future research should investigate whether these findings may be replicated in other samples.

### **Interpersonal variables**

Social support, in particular supervision and peer support, have been linked with the development of VPTG (Brockhouse et al., 2011; Linley & Joseph, 2005, 2007; Satkunanayagam et al., 2010; Tehrani, 2010). Such findings are consistent with influential models of posttraumatic growth (Schaefer & Moos, 1998; Tedeschi & Calhoun, 2004) which suggest that social support positively influences coping and adaption following trauma, improves social resources, and decreases isolation and loneliness, all facilitating posttraumatic growth. Other forms of social support, such as organisational support (Brockhouse et al., 2011) and talking to family or friends (Tehrani, 2010), were not found to facilitate growth. It appears that long-term supervision and peer support are the most beneficial forms of social support following vicarious traumatic exposure.

Witnessing posttraumatic growth in direct trauma survivors was identified as a facilitative factor of VPTG. Professionals working with refugees (Barrington & Shakespeare-Finch, 2013), psychotherapists (Arnold et al., 2005), interpreters (Splevins et al., 2010), and support workers (Guhan & Liebling- Kalifani, 2011) all described how witnessing growth in their clients helped them to develop their own personal growth. Witnessing growth among survivors caused participants to become shocked and amazed at the strength of human resiliency and triggered positive emotions such as hope, joy, and happiness (Splevins et al., 2010), which facilitated the process of VPTG.

### **External variables**

Time was identified as one external factor that facilitates the development of VPTG. Helping professionals working with refugees (Barrington & Shakespeare-Finch, 2013), interpreters (Splevins et al., 2010), and social workers (Shamai & Ron, 2009) reported that over time their levels of distress decreased and were replaced with personal growth. This may suggest a temporal sequence to the psychological outcome of vicarious traumatic exposure, perhaps it is natural for professionals to initially react with distress, but over time they are able to process and find meaning in the event, resulting in VPTG.

Finally, there are mixed results regarding whether having a personal trauma history facilitates VPTG following subsequent vicarious traumatic exposure. Three studies reported a positive association between VPTG and personal trauma history (Kjellenberg et al., 2013; Linley & Joseph, 2007; Swickert, Hittner, DeRoma, & Saylor, 2006); however, one study reported no difference in VPTG levels between those participants with a personal trauma history and those without. Perhaps the way previous traumatic events were processed influences whether or not they facilitate VPTG following subsequent vicarious traumatic exposure (Schaefer & Moos, 1998). However, results should be interpreted with caution because it is unclear whether personal trauma history had been controlled for when

measuring VPTG; therefore the posttraumatic growth recorded may have resulted from the participant's own personal trauma, rather than their vicarious traumatic exposure.

### **Vicarious posttraumatic growth and secondary traumatic stress**

Secondary traumatic stress refers to the presence of symptoms typically displayed by individuals suffering from Posttraumatic Stress Disorder, only they result from vicarious rather than direct traumatic exposure (Canfield, 2005). Symptoms such as intrusive thoughts or flashbacks to the vicarious trauma, avoidance of related stimuli, hyperarousal, and negative changes to cognition and mood have been reported (e.g., Steed & Downing, 1998). Based on this description, it could be assumed that secondary traumatic stress and VPTG represent opposite ends of the same continuum; on one end are the positive effects of vicarious traumatic exposure and on the other end the negative effects. In contrast, several studies included in this review reported a positive association between VPTG and secondary traumatic stress (e.g., Davis & Macdonald, 2004; Kjellenberg et al., 2013). One explanation of these results may be that, prior to experiencing VPTG, individuals experience initial shock, devastation, and the shattering of their assumptions about themselves and the world (O'Sullivan & Whelan, 2011; Shamai & Ron, 2009; Splevins et al., 2010). This experience may provide the foundation for VPTG and secondary traumatic stress to develop simultaneously, contributing to the positive association reported between the two phenomena.

However, not all research in this area is consistent. Several studies also reported finding no association between VPTG and secondary traumatic stress (Gibbons et al., 2011; Taubman-Ben-Ari & Weintroub, 2008), while a third suggested a more complex alternative (Shiri et al., 2008a). Shiri et al. (2008a) reported that the relationship between VPTG and secondary traumatic stress was best explained as curvilinear. Initially VPTG increased linearly with increases in secondary traumatic stress; however, at a point VPTG reached a plateau and no longer continued to increase despite further increases in secondary traumatic

stress (Shiri et al., 2008a). This curvilinear model explained the relationship between secondary traumatic stress and VPTG over and above a linear relationship. A curvilinear relationship has also been reported between posttraumatic growth and Posttraumatic Stress Disorder among direct trauma survivors (e.g., Butler et al., 2005). However, a later study failed to replicate the finding of a curvilinear relationship between VPTG and secondary traumatic stress (Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008b). Further research is needed to ascertain the nature of the relationship between secondary traumatic stress and VPTG, as such research will enable us to better understand the complex and varying ways that health professionals react to vicarious traumatic exposure, and in turn, how to best support them during this time.

#### **Limitations in the literature**

Several additional limitations were apparent in the reviewed literature. Currently, there is no validated quantitative measure to assess VPTG, and the PTGI is the most commonly used instrument. However, as this review has identified unique elements in the nature of VPTG, the PTGI, and all other measures originally designed to assess posttraumatic growth following direct traumatic exposure, are likely to be limited in their capacity to assess all aspects of VPTG. The assessment of VPTG is further restricted by evidence which suggests that posttraumatic growth scales may be measuring slightly different constructs (Linley et al., 2005).

There were also limitations regarding the design of the reviewed studies. First, sample sizes were generally small; less than half of the studies had a sample size exceeding 100 participants. Therefore it is possible that small to moderate effects may have been missed (Linley & Joesph, 2005; Linley et al., 2005; Samios et al., 2012); this may explain some of the discrepant results reported in this field. Second, literature on the development of VPTG is hindered by the lack of longitudinal research in this area, especially considering that

posttraumatic growth has been argued to develop gradually over time (Calhoun & Tedeschi, 2006; Tedeschi & Calhoun, 2004). Third, participants' own personal trauma was largely unaccounted or controlled for among the reviewed studies. Therefore, it is unknown to what extent the posttraumatic growth reported in these studies is representative of VPTG, as it may have arisen from participants' own personal trauma. Finally, there has been very little research comparing VPTG among several populations. Comparative research may enable us to assess whether some types of professionals are more likely to develop VPTG, identify why this is the case, and in turn use this information to facilitate VPTG among groups that previously did not demonstrate high levels of growth.

The validity of VPTG was not discussed in any of the reviewed articles. Several issues regarding the validity of the wider posttraumatic growth construct have been raised in the literature, all of which are applicable to VPTG. For example, there has been controversy over whether perceived posttraumatic growth equates to actual change (e.g., Joseph, 2011), or whether posttraumatic growth is "illusory" (Taylor, 1983; Taylor & Armor, 1996). Future research should aim to explore these validity issues within the context of VPTG.

Finally, while reviewing the included articles, it was evident that there is a high level of inconsistency among results in this field. This makes it difficult to draw conclusions and to outline meaningful implications for those health professionals working with trauma survivors. In particular, results were very mixed regarding whether certain psychological, behavioural, and external factors facilitated VPTG, and how VPTG related to secondary traumatic stress.

### **Directions for future research**

With so much literature focusing on the negative impact of working with trauma survivors, it is important that adequate attention is also paid to the positive consequences of such work. Future research investigating factors that enhance the development of VPTG

could inform professionals on how to best prepare themselves for trauma work, and could have implications for how health care organisations can best support their employees and facilitate VPTG in the workplace. Future research should work to overcome limitations in the field by producing a validated instrument that specifically aims to measure VPTG. This instrument should be informed by theoretical and empirical literature and should consider elements general to the posttraumatic growth construct and specific to VPTG. Finally, research that aimed to provide a greater understanding of the complex relationship between VPTG and secondary traumatic stress would be fruitful.

### **Limitations of the current review**

First, only journal articles printed in English were eligible for inclusion in this review. It is possible that valuable contributions to this field have been printed in another language or exist in other forms of text, such as books, dissertations, or theses. In addition, valuable articles may have fallen outside the databases utilised in the current study. While care was taken to perform searches on a variety of databases that were deemed most likely to yield relevant results, it is possible that articles have been missed. Therefore, while this review provides the most comprehensive review of the VPTG literature to date, it cannot be said to be all-inclusive.

Second, the inclusion criteria for this review required studies to have a specific aim of studying VPTG. Studies that captured the benefits of trauma work without a specific focus of VPTG (e.g., Steed & Downing, 1998) were not eligible for inclusion. The specified criterion was established to capture a homogenous body of research from which meaningful conclusions could be drawn. However, this once again limits the research reviewed and means that a study may have been missed that would have significantly contributed to the results provided here.

Third, studies that reported participants to have a “shared trauma reality” with direct trauma survivors (e.g., Tosone, 2011) were not included in this review, as the review was specific to vicarious traumatic exposure. That is not to say that these studies failed to investigate a form of posttraumatic growth worth attention. It may be that the individuals included in these studies exhibit growth that matches VPTG, or they may demonstrate their own unique manifestation. Inclusion of these studies may have altered the results presented in this review. Future research could compare such studies with those focusing exclusively on VPTG to ascertain similarities and differences between these two populations.

### **Summary**

This review aimed to provide a comprehensive review of the VPTG literature with five focal areas; assessment, the level of similarity between VPTG and direct posttraumatic growth, facilitating factors, the relationship between VPTG and secondary traumatic stress, and limitations. A review of the assessment procedures found quantitative literature to be limited in its capacity to measure VPTG, due to the absence of a scale designed specifically for vicarious traumatic exposure. VPTG was found to be partially distinct from direct posttraumatic growth; subtle differences included a more abstract form of growth and professional enhancement was found to be a unique manifestation of change. Participants’ VPTG was facilitated by a range of cognitive, psychological, behavioural, interpersonal and external factors; however, it should be noted that there was a great deal of inconsistency in the results. Regarding the relationship between VPTG and secondary traumatic stress, three possible explanations have been proposed- a positive linear relationship, no relationship, and a curvilinear relationship. Future research is needed to ascertain which of these three possibilities best explains the association between VPTG and secondary traumatic stress. Current limitations of the literature include a lack of appropriate measures, longitudinal research, and consideration of validity; discrepant results; small sample sizes; and the failure

to account for personal trauma history. These limitations represent areas in need of future research.

DRC 16



**MASSEY UNIVERSITY**  
GRADUATE RESEARCH SCHOOL

**STATEMENT OF CONTRIBUTION  
TO DOCTORAL THESIS CONTAINING PUBLICATIONS**

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

**Name of Candidate:** Shekinah Manning-Jones

**Name/Title of Principal Supervisor:** Ian de Terte

**Name of Published Research Output and full reference:**

Manning-Jones, S., de Terte, I., & Stephens, C. (2015). Vicarious posttraumatic growth: A systematic literature review. *International Journal of Wellbeing*, 5(2), 125-139.

**In which Chapter is the Published Work:** Chapter 2

Please indicate either:

- The percentage of the Published Work that was contributed by the candidate:  
and / or
- Describe the contribution that the candidate has made to the Published Work:

The candidate is responsible for the work put into this manuscript (e.g., design, analysis, and write-up) and the supervisors have contributed to the manuscript in the same way that they have contributed to the chapters in a traditional thesis: by providing guidance and feedback.

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Principal Supervisor's signature

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## Chapter Three

### The current research: Rationale and method

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#### The current study

From the systematic literature review it was apparent that VPTG is an under-researched area with controversial findings. Results were particularly mixed regarding facilitative factors of VPTG. Furthermore, research has not investigated *how* these factors promote or enhance the likelihood of VPTG. The current research focuses on one type of potential facilitating factor, positive coping strategies (in particular, social support, self-care and humour), and aims to investigate how these strategies relate to both VPTG and *secondary traumatic stress* (STS). In addition, the current research aims to investigate whether these coping strategies function to facilitate VPTG via mediation. Social support, self-care and humour were selected for investigation because they have been listed among the most commonly utilised coping strategies among health professionals (e.g., Follette, Polusny, Milbeck, 1994; Iliffe & Steed, 2000).

Very little previous research has compared VPTG among different populations. The majority of VPTG studies included in the systematic literature review were carried out with a single type of health professionals, for example social workers, and only two studies provided any type of comparative statistics between professional groups (Shiri et al., 2008a; Taubman-Ben-Ari & Weintroub, 2008). The current research aims to contribute to the body of literature by providing a comparison of VPTG levels among five groups of New Zealand health professionals; medical doctors, nurses, social workers, psychologists, and counsellors.

Finally, contradictory findings were reported regarding the relationship between VPTG and STS. Three possible relationships have been proposed in the literature, a positive association between the two constructs (e.g., Davis & Macdonald, 2004), no association (e.g., Gibbons et al., 2011), or a curvilinear relationship (Shiri et al., 2008a). The current research

aims to investigate which relationship best accounts for the VPTG-STS relationship among New Zealand health professionals (both as individual samples and as an overall group).

These aims give rise to the following research questions:

- a) Do the coping strategies utilised by health professionals' predict their likelihood of developing STS or VPTG?
- b) Do coping strategies mediate the relationship between vicarious traumatic exposure and VPTG?
- c) Do different types of health professionals differ in their levels of STS, VPTG, and coping following vicarious traumatic exposure?
- d) How do STS and VPTG relate to one another?

The first two research questions are addressed simultaneously in a single manuscript (Chapter Four), and the remaining two questions are addressed separately in two subsequent manuscripts (Chapters Five and Six). It is envisaged that results from the current research will begin to provide an understanding of the ways New Zealand health professionals react to vicarious traumatic exposure, and may provide tentative suggestions as to how health professionals and their employers can best protect themselves against STS and possibly facilitate the development of vicarious posttraumatic growth.

### **Key variables**

This section provides a definition of the key variables investigated in the current research.

#### **Vicarious traumatic exposure**

The fifth edition of the *Diagnostic Statistical Manual for Mental Disorders* (DSM 5; American Psychiatric Association, 2013) defines a traumatic event as exposure to actual or threatened death, serious injury, or sexual violence. This includes, but is not limited to, events such as physical or sexual assault, motor vehicle accidents, war and torture, natural and made-made disasters and terrorist attacks (American Psychiatric Association, 2013).

Traumatic events tend to be shocking, unexpected, and uncontrollable; they are beyond what

a person would normally experience, pose a threat to one's physical safety, and have long-lasting consequences (Calhoun & Tedeschi, 1998).

The term *vicarious traumatic exposure* has been used in the literature to refer to indirect exposure to a traumatic event (e.g., Brockhouse, et al., 2011). This can include exposure to direct trauma survivors or listening to the aversive details of a traumatic event (Brockhouse et al., 2011; Pearlman & Saakvitne, 1995). For the purposes of this research, vicarious traumatic exposure is considered to be distinct from hearing about or witnessing a traumatic event happening to a loved one, and from exposure to the immediate aftermath of a traumatic event, such as emergency work, as such events are considered to be directly traumatic. Those who work with trauma survivors in a professional capacity, for example interviewers (Goldenberg, 2002), interpreters (Splevins, Cohen, Joseph, Murray & Bowley, 2010), funeral directors (Linley & Joseph, 2005), and health professionals (e.g., Brockhouse et al., 2011) are prime examples of populations who experience vicarious traumatic exposure.

### **Vicarious posttraumatic growth**

Posttraumatic growth involves positive changes to interpersonal relationships, life philosophy and self-perception (Tedeschi & Calhoun, 1996; Joseph & Linley, 2005). VPTG refers to these positive consequences occurring as a result of vicarious traumatic exposure (Arnold, Calhoun, Tedeschi, & Cann, 2005). For the purposes of this research, VPTG will refer to positive psychological growth that occurs as a result of working with direct trauma survivors.

VPTG should be differentiated from the related concepts of *compassion satisfaction* and *resilience*. Compassion satisfaction has been defined as “the pleasure you derive from being able to do your job well” (Stamm, 2005, p.5). For the purposes of this research, compassion satisfaction is conceptualised as a general positive emotional state, while VPTG refers to psychological, cognitive or behavioural change that occurs following vicarious

traumatic exposure. Resilience portrays the ability to adapt to, or overcome, negative events and return to previous levels of functioning (Clay, Knibbs & Joseph, 2009; Scales, Benson, Leffert & Blyth, 2000). Essentially, resilience refers to the absence of negative consequences, while VPTG is concerned with the presence of positive consequences. Therefore, VPTG should not be considered a type of resilience, and research referring to resilience will not be included here.

Finally, it should be noted that the terms *stress-related growth*, *adversarial growth*, and *thriving* have been used interchangeably with the term posttraumatic growth in the literature (e.g., Linley & Joseph, 2004). The term VPTG was chosen for use in the current research because it demonstrates a) a specific focus on traumatic (rather than simply stressful or unpleasant) events, and b) a focus on vicarious rather than direct traumatic exposure.

### **Secondary traumatic stress**

STS can be characterised as the negative behavioural and emotional implication of vicarious traumatic exposure (Figley, 1995a). Symptoms are akin to those of Posttraumatic Stress Disorder (PTSD) experienced among direct trauma survivors, the only difference being that STS develops following vicarious rather than direct traumatic exposure (Canfield, 2005). In fact, the DSM 5 (American Psychiatric Association, 2013) includes vicarious traumatic exposure in the diagnostic criteria of PTSD, suggesting that STS can be considered a subtype of PTSD. Therefore, STS can be characterised as symptoms of intrusion, such as distressing memories, flashbacks and dreams; avoidance of both internal and external reminders of the vicarious traumatic exposure; negative alterations to cognition and mood; persistent negative emotional states and feeling detached from others; and marked alterations in arousal and reactivity, such as irritability, hyperarousal, and poor concentration. If an individual's symptoms satisfy the full diagnostic criteria of PTSD, they can be considered to have

Secondary Traumatic Stress Disorder (Figley, 1995b). A full list of PTSD symptoms (according to the American Psychiatric Association (2013)) can be found in Appendix A.

Many terms have been used to describe the negative effects of vicarious traumatic exposure. *Vicarious traumatisation*, *compassion fatigue* and *burnout* all have important places within the literature. It is important to distinguish STS from these related concepts. Vicarious traumatisation can be defined as “the transformation in the inner experience of the therapist that comes about as a result of empathetic engagement with clients’ trauma material” (Pearlman & Saakvitne, 1995, p. 31). The emphasis here is on the inner experience; vicarious traumatisation is conceptualised as an alteration to one’s beliefs about themselves, others, and the world around them (McCann and Pearlman, 1990; Pearlman & Saakvitne, 1995). This is distinct from STS, which is primarily focused on diagnosable symptoms. However, the line between vicarious traumatisation and STS has become somewhat blurred with the inclusion of negative alterations to cognition in the latest diagnostic criteria of PTSD (American Psychiatric Association, 2013); now STS is also characterised by changes at the inner level. It appears that these two already related concepts are on a path to further convergence; perhaps vicarious traumatisation could be conceptualised as one symptom of STS. Despite this, these two concepts originate from different focal points and each has their own body of literature. For the purposes of this thesis, only literature concerned with STS will be reviewed.

Burnout has been defined as “a state of physical, emotional, and mental exhaustion caused by long term involvement in emotionally demanding situations” (Pines & Arson 1988, p.9). It is characterised by depersonalisation, hopelessness, a reduced sense of accomplishment, feeling overwhelmed, and poor self-esteem (Phelps, Lloyd, Creamer, & Forbes, 2009). While conceptually related and empirically likely to co-occur with STS (e.g., Devilly, Wright, & Varker, 2009), burnout refers to overall psychological, emotional, and

physical depletion, while STS outlines set of specific psychological symptoms. In addition, STS often includes a fear component that is absent from burnout (Stamm, 2009) and while burnout develops gradually from the long-term contact with traumatised others, STS can develop suddenly; it may even occur after a single occurrence of vicarious traumatic exposure (Figley, 1995b). Finally, burnout is a general concept that can arise among people working with difficult populations who are not trauma survivors, while STS is specific to vicarious traumatic exposure (Salston & Figley, 2003).

The distinction between STS and compassion fatigue is not so clear. Compassion fatigue refers to “deep feelings of suffering, sorrow, or sympathy to the point of exhaustion, associated with a deep desire to alleviate the pain or suffering of another person” (Tabor, 2008, p. 204). While this definition does not suggest that compassion fatigue is characterised by the full set of psychological symptoms associated with STS, the two concepts have been described as synonymous in previous literature (e.g., Figley, 1995b). In addition, some authors have conceptualised burnout and STS as subcomponents of compassion fatigue (Stamm, 2009) while others have described the concepts separately (e.g., Tabor, 2008). Alternatively, it has been suggested that compassion fatigue represents the broader negative impact of working with trauma survivors (Dunkley & Whelan, 2006), while STS specifically refers to PTSD symptomatology. Recent research that aimed to investigate whether STS and compassion fatigue were in fact the same construct reported that the two phenomena should be considered related but distinct (Meadors, Lamson, Swanson, White, & Sira, 2009-2010). In the current research STS and compassion fatigue are considered to be distinct concepts, and only literature concerned with STS will be reviewed in this thesis.

### **Social support**

Social support is a complex construct that has been given many definitions in the literature (Williams, Barclay, & Schmied, 2004). Streeter and Franklyn (1992) outline three

prominent conceptualisations of social support; social embeddedness, enacted support, and perceived social support. *Social embeddedness* refers to the actual links or connections that an individual has with those important to them. According to Streeter and Franklyn, this conceptualisation of social support is concerned with the strength and size of one's support networks; these are seen as indicators of one's available social resources. *Enacted support* refers to specific actions and behaviours that others perform to illustrate their support, for example attentive listening and offering assistance with a task (Streeter & Franklyn, 1992). Finally, *perceived social support* refers to an individual's cognitive evaluations of their support networks. Perceived social support is more concerned with how supported an individual feels, rather than an evaluation of ones "actual" social resources. It recognises that not all attempts to provide social support are successful and what is most important is that an individual has confidence that appropriate and beneficial support will be provided to them when needed (Tracy, 1990). It is this perceived form of social support that will be investigated in the current research.

### **Self-care**

Self-care refers to those activities that one engages in to maintain and enhance their emotional, physical, mental and spiritual wellbeing (American Counselling Association, 2005). When used in the professional realm, self-care functions to protect oneself from workplace stress, and to ensure that professionals continue to provide the best care to clients (American Counselling Association 2005; Williams, Richardson, Moore, Eubanks Gambrel, & Keeling, 2010). Previous literature has focused on several different aspects of self-care including one's perceived ability to engage in self-care activities (e.g., Callaghan, 2006), perceived usefulness of self-care (e.g., Bober & Regehr, 2006), and the actual utilisation of self-care strategies (e.g., Goncher, Serman, Haskins, & Barnett, 2013). Self-care utilisation, the frequency at which one engages in self-care activities, will be a focus within this research.

## **Humour**

Humour is a difficult concept to define. Pasquali (1990) defines humour, in its broadest sense, as anything that anyone has ever found funny. This definition represents the complexity of the construct; however, it is not helpful when operationalising humour for empirical research. Of the many forms of humour (e.g., black humour, aggressive humour, affiliative humour) the current research focuses on just one type, *coping* or *self-enhancing humour*. Self-enhancing humour refers to the maintenance of a humorous perspective on life despite adversity (Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003), and is characterised by the ability to often find amusement in the inconsistencies of life (Kuiper, Martin, & Olinger, 1993). This form of humour functions as a type of coping strategy, aiding emotional regulation during difficult circumstances (Martin, Kuiper, Olinger, & Dance, 1993). Rather than having an interpersonal focus, such as enhanced communication, this form of humour is beneficial to the functioning of the self (Martin et al., 2003). It is thought that this form of humour functions to reduce negative emotions (such as those associated with depression and anxiety) and is likely to be related to enhanced self-esteem and psychological wellbeing (Martin et al, 2003). When the term *humour* is presented throughout the current research, it is coping/self-enhancing humour that is being referred to.

## **Measures**

### **Vicarious traumatic exposure**

Three items were included in the current research to measure vicarious traumatic exposure. First, participants were asked to indicate the number of hours in the past 7 days they had spent with clients who had experienced a traumatic event (*Recent vicarious traumatic exposure*). They were then asked to indicate the average number of hours per week they spend with clients who have experienced a traumatic event (*Average vicarious traumatic exposure*). Research has suggested that what can be considered a “traumatic” event is subjective and differs between individuals (e.g., Paton & Smith, 1996), therefore participants

were left to decide what qualified as a “traumatic event”. Due to a high level of multicollinearity (a high level of association which can indicate that two variables are measuring the same construct (Malone & Lubansky, 2014)) between Recent vicarious traumatic exposure and Average vicarious traumatic exposure, only Average vicarious traumatic exposure was included in analysis. This measure of vicarious traumatic exposure was chosen because it provided a control of weekly variation in vicarious traumatic exposure that may have significantly affected results. Many participants completed the survey over the holiday period (December 2013 – January 2014) and thus may not have been working during the time they completed the survey. Average vicarious traumatic exposure was thought to provide a more accurate measure of their general weekly vicarious traumatic exposure. Finally, based on research that has suggested that it is cumulative vicarious traumatic exposure that is important (Brockhouse et al., 2011), participants were asked to indicate on a 5-point Likert scale their level of exposure to clients who have experienced a traumatic event over their entire career. This latter item was not included in analysis as it did not appear to be able to distinguish meaningfully between participants, as all participants generally placed themselves around the centre of the scale. It may have been helpful to provide a reference group to participants, for example asking them to compare themselves to others in their profession, or to have created a scale without a midpoint (Garland, 1991). Therefore, when the term *vicarious traumatic exposure* is used throughout this thesis, it should be conceptualised as a measure of participants' average current exposure, it is not a measure of total vicarious traumatic exposure experienced over participant's careers.

### **Vicarious posttraumatic growth**

The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was utilised to measure VPTG. The PTGI is a 21-item questionnaire that assesses the five domains of psychological growth following traumatic exposure; new possibilities, relating to others,

personal strength, positive change and appreciation of life. Participants rate the extent to which they have experienced the growth described in each item on a 6-point Likert scale. While not specifically designed to measure VPTG, this scale is a well-established measure with good psychometric properties (Tedeschi & Calhoun, 1996) that has been used numerous times in previous research to measure VPTG (e.g., Ben-Porat & Itzhaky, 2009). Consistent with previous research, participants were asked to focus on their work with trauma survivors before filling out this measure (Shiri et al., 2008b). Wording of response options was altered from “I have/have not experienced this change as a result of my crisis” to “I have/have not experienced this change as a result of *my work*”. Tedeschi and Calhoun (1996) reported good internal reliability ( $\alpha = .90$ ), acceptable test-retest reliability ( $r = .71$ ), and statistical support for the five-factor model. Cronbach’s Alpha for the current research was  $\alpha = .95$ .

While the PTGI has been utilised in the majority of quantitative studies investigating VPTG, the positive subscale of the Changes in Outlook Questionnaire (CiOQ; Joseph et al., 1993) has also been used as a measure of VPTG (e.g., Linley & Joseph, 2005). The CiOQ simultaneously assesses both positive and negative changes that can occur following adversity, and in this way may offer a more realistic portrayal of the changes that can occur following traumatic exposure. However, the PTGI was chosen over the CiOQ for the current research because it would enable direct comparisons with the majority of previous literature, and it provides a more detailed measurement of VPTG that matches theoretical conceptualisations of posttraumatic growth (the PTGI measures of 5 domains of growth while the CiOQ contains only 11 items that load onto a single factor). In addition, the current study assesses negative responses to trauma (STS) separately, thus the negative changes subscale of the CiOQ would have been redundant.

Despite its advantages over the CiOQ, the PTGI is not without its limitations. First, the PTGI was developed for use with direct trauma survivors, and thus may not capture all

aspects of VPTG. Second, despite the fact that participants were oriented to their work while filling out the PTGI, it is possible that their responses were confounded by positive changes they have experienced as a result of personal trauma. This can be statistically controlled for, but should still be acknowledged as a limitation. However, as there is no measure designed specially to measure VPTG, the PTGI was considered the most suitable choice for the current research.

### **Secondary traumatic stress**

The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) was utilised to measure STS. This 17-item scale, designed for use with professionals who work with trauma survivors, was constructed to align with the revised fourth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) diagnostic criteria for PTSD. Therefore it measures symptoms of intrusion, avoidance, and hyperarousal. Bride et al., (2004) reported that this scale displayed excellent internal reliability ( $\alpha = .93$ ), showed convergent and divergent validity, and the three factor structure was statistically supported. Cronbach's Alpha for the current research was  $\alpha = .93$ .

A variety of measures, including the Professional Quality of Life Scale (ProQOL; Stamm, 2005), the Impact of Events Scale (Weiss & Marmar, 1997) and the Revised PTSD Inventory (Solomon, Benbenishty, Neria, Abramowitz, Ginzburg & Ohry, 1993), have been used to measure STS in previous research. Perhaps the greatest rival to the STSS in previous literature has been the ProQOL. The ProQOL was not utilised in the current research for several reasons. First, the ProQOL conceptually equates STS and compassion fatigue; however, recent research has suggested that these two concepts are distinct (Meadors et al., 2009-2010). As the current research conceptualised STS and compassion fatigue to be related but distinct constructs, it was not considered appropriate to use a measure that regarded them

equivalent. Second, the ProQOL does not map directly onto the diagnostic criteria for PTSD; given that research has suggested symptoms of STS and PTSD to be identical (Canfield, 2005), this was considered to be a serious limitation. Finally, it is recommended that the STS subscale of the ProQOL should not be administered without the accompanying subscales (Stamm, 2009). This would have added unnecessary length to the current survey. The STSS was chosen over the IES and Revised PTSD inventory because these scales were designed for use with direct trauma survivors, rather than the professionals that work with this population.

Overall the STSS was selected for use in the current research because it was designed specifically to measure STS, it maps directly onto the DSM-IV-TR diagnostic criteria for PTSD, it is brief and easy to administer, and no alterations were required for use with the current population. However, the STSS is limited in that it does not assess for changes to cognition or mood, a cluster of symptoms that is included in the most recent version of the DSM (American Psychiatric Association, 2013). Nevertheless, as a scale constructed specifically for use with health professionals who work with trauma survivors that aligns with the DSM 5 is not yet available, the STSS remained the most suitable scale to use in the current research.

### **Social support**

The Social Support Scale (Caplan, Cobb, French, Van Harrison, & Pinneau, 1975) was utilised to measure social support. This four item scale assesses participants' perceived level of emotional and instrumental support from three sources: supervisors, co-workers (peers), and family/friends. For each item, participants were required to indicate how much support they got from each source using a 5-point Likert scale ranging from 1 ("Very little") to 5 "A great deal"). In addition to the four original items, an additional item was included that asked participants to indicate how much each of the support sources helped them to feel prepared for their work. This item was added to reflect literature which has suggested that an

important aspect of social support is the extent to which support systems foster a sense of preparedness and competence in the workplace (e.g., Harrison & Westwood, 2009; Pistorius, Feinauer, Harper, Stahmann, & Miller, 2008). The original response format was applied to this additional question. Analysis revealed that the internal consistency of the scale (Cronbach's alpha) was improved with the addition of this item (increased from  $\alpha = .84$  to  $\alpha = .87$ ) and was not improved if any one item was deleted. Therefore, the additional item was included in all statistical analyses of social support.

The Social Support Scale was chosen over other measures of social support because it enables the simultaneous investigation of several sources of support. Peer social support has been implicated as particularly facilitative of VPTG (e.g., Tehrani, 2010) and given the nature of participants' vicarious traumatic exposure, organisational support (social support from supervisors) was also deemed an important domain to investigate. The Social Support Scale provided an overall measure of social support as well as the investigation and comparison of distinct subtypes. In addition, with five items it was a briefer alternative than other considered measures of social support, such as The Social Support Questionnaire (Sarason, Levine, Bashman, & Sarason, 1983). Overall, the Social Support Scale was considered to be a brief, psychometrically sound (Ganster, Fusilier, & Mayes, 1986; Ho & Gupta, 2014) measure that was consistent with the aims of the current research.

### **Self-care**

The Self-Care Utilisation Questionnaire (SCUQ; Goncher et al., 2013) was selected to assess self-care. This is a 30-item measure that assesses the extent to which participants utilise a range of self-care activities, using a 5-point Likert scale. Attending to spiritual and religious needs, taking the time to engage in physical activity, and talking to others when stressed are examples of the included self-care strategies. The SCUQ was originally designed for use with students pursuing the degree of clinical psychology. For the current research this

measure was adapted for use with health professionals; where items referred to the graduate training program or “clinical work”, they were changed to refer to “work” generally, where items referred to “psychology” as an interest area, they were altered to refer to “healthcare”. Promising psychometric properties were reported by Goncher et al., (2013); Cronbach’s alpha was reported to be  $\alpha = .89$ . In the current study, Cronbach’s alpha was  $\alpha = .91$ .

The SCUQ was chosen for use in the current research for several reasons. First, it provides a measure of the frequency at which participants engage in self-care strategies. Other self-care measures have focused on variables such as participants’ perceived ability to engage in self-care (e.g., the Exercise of Self-Care Agency; Kearney & Fleischer, 1979), which was not a focus on the current research. Second, the SCUQ is a holistic measure that includes a range of self-care domains (e.g., physical, emotional, psychological, spiritual). Several other self-care scales, such as the Self Rated Abilities for Health Practices Scale (Becker, Stuifbergen, Oh, & Hall, 1993) enquire about a limited range of self-care strategies and tend to over-focus on physical health. Third, while further psychometric validation is needed, the SCUQ has promising psychometric properties (Goncher et al., 2013); the Self-Care Assessment Worksheet (Saakvitne & Pearlman, 1996) was also considered for the current study but its lack of psychometric validation made the SCUQ a more appropriate choice. Finally, the SCUQ was the briefest of potential self-care scales, for example it contains 22 fewer items than the Health-Promoting Lifestyle Profile II (Walker, Sechrist, & Pender, 1987). Limitations of using the SCUQ include that it has not been used with health professionals before, therefore direct comparisons are not possible, and that limited, albeit promising, psychometric properties are available.

### **Humour**

The Self-Enhancing Humor subscale of the Humor Styles Questionnaire (HSQ; Martin et al., 2003) was utilised in the current research. This is an 8-item measure that

assesses the use of humour as a coping strategy and the extent to which participants can maintain a positive and humorous outlook on life despite adversity. Participants rate the extent to which they agree with each item using a 7-point Likert scale. The Self-Enhancing Humor subscale was demonstrated to have very good internal reliability ( $\alpha = .81$ ), test-retest reliability ( $r = .81$ ), and convergent validity with other scales that measure coping humour (Martin et al., 2003). In the current research Cronbach's alpha was  $\alpha = .82$ .

Two other humour scales were considered for use in the current study, the humour subscale of the COPE (Carver, Scheier, & Weintraub, 1989) and the Coping Humor Scale (CHS; Martin & Lefcourt, 1983). The HSQ was chosen over the COPE because the usefulness of this latter scale has been criticised due to its inability to distinguish between adaptive and harmful uses of humour (Martin et al., 2003). It was chosen over the CHS due to its more favourable psychometric properties, as recommended by Martin et al. (2003). Thus, HSQ was considered the most appropriate measure of humour for the current research.

### **Personal trauma history**

The Traumatic Stress Schedule (TSS; Norris, 1990) was used in the current research to measure participants' direct traumatic exposure. This scale requires participants to indicate whether they have experienced the following traumatic events: robbery, assault, sexual assault, fire, natural disaster, death of a family member or friend, motor vehicle accident, military combat, or some other shocking or distressing event. These events were selected on the basis of being violent events outside the normal realm of human experience, which typically induce fear and aversion (Norris, 1990; Norris & Hamblen, 2004). In addition to indicating whether they had experienced each event, participants were also required to indicate the number of times they have experienced each event; this component was added by the researcher in order to gain a more detailed picture of participants' level of direct traumatic exposure. However, this latter component was excluded from analysis due to a high level of

invalid responding. Over 25% of participants who indicated that they had experienced a traumatic event failed to record the number of times this had occurred. In addition, some participants were spurious in their estimates; for example one participant estimated they had experienced a particular traumatic event some 10,000 times. The TSS has been shown to have good test-retest reliability ( $r = .88$ ; Norris & Perilla, 1996) and has convergent validity with a measure of Posttraumatic Stress Disorder (Stephens, Long & Miller, 1997). Cronbach's alpha for the current research was not produced as the TSS is a checklist of standalone events rather than a collection of items measuring an overall construct; a participant who scored highly on one or two items on the TSS would not be expected to necessarily score highly on the rest.

The TSS was chosen over other measures of direct traumatic exposure, such as the Trauma History Questionnaire (Green, 1996) and the Stressful Life Events Screening Questionnaire (Goodman, Corcoran, Turner, Yuan & Green, 1998), because it is brief, psychometrically sound (Norris & Perilla, 1996; Stephens et al., 1997), does not over-sample certain traumatic events such as sexual assault, and only contains events objectively defined as traumatic. In addition, the events included in the TSS are consistent with those listed in the DSM 5 (American Psychiatric Association, 2013) and it has been suggested as a useful measure to use when there is a need to control for direct traumatic exposure (Norris & Hamblen, 2004), as there is in the current research.

### **Data collection**

#### **Modality**

Data was collected via an online survey hosted on the Massey University website (Appendix C) over a three month period (December 2013 – February 2014). The survey took participants approximately 15-20 minutes to complete. Participants were provided with a Participant Information Sheet (Appendix B) prior to filling out the survey and were provided with the option to request a summary of results upon completion. The Participant Information Sheet included background information about the research topic; eligibility to participate;

participation requirements; confidentiality; data analysis, presentation, and storage; participant rights; available support; and contact information. Participants were entered into a prize draw to win one of three \$50 book vouchers as a token of the researchers' appreciation of their participation; this was drawn with the aid of a random number generator.

### **Recruitment**

Participants were recruited via their professional bodies, workplaces, online registries, and social media sites. Emails were sent to administrators of professional bodies/ workplaces asking them to distribute information about the research accompanied by an invitation to participate, or was sent directly to potential participants (Appendix D). Psychologists, psychiatrists, social workers, counsellors, nurses and medical doctors were specifically targeted, as these professions appeared most likely to deal with trauma survivors based on previous research. However, all health professionals were invited to participate. Data collection took place over three months, with the first two months concentrating on recruiting participants via their professional bodies, workplaces, and online registries, and the final month through social media.

### **Considerations prior to data analysis**

#### **Participant exclusion criteria**

A total of 529 health professionals completed all or part of the current survey. One hundred and forty-six participants were removed for failing to complete an entire section of the survey. A further 16 participants were removed because they fell outside the target populations (psychologists, psychiatrists, social workers, counsellors, nurses, and medical doctors). Finally, as only two psychiatrists participated in the survey, they were removed to protect their confidentiality. Thus there was a final sample of 365 participants.

#### **Missing data**

Little's Missing Completely at Random test revealed that 0.5% of the total data points were missing, with no systematic pattern identified. Tabachnick and Fidell (2013) argued

randomly missing data that constitutes less than 5% of the total data set poses only a minor threat, and that all corrective procedures are likely to yield similar results. They suggest that in this circumstance Expectation Maximisation is the simplest and most reasonable approach to data imputation. Expectation Maximisation is a two-step process which uses the existing sample parameters to estimate the missing values (based on the likelihood that they would be consistent with the distribution displayed in the available data), and then uses the filled in values to re-estimate the parameters. This process is repeated until convergence is achieved and stable estimates have been provided. This method was chosen over Listwise Deletion because, while only 0.5% of the overall data points were missing, this was spread over 28% of participants; Listwise Deletion would have resulted in a significant reduction in sample size and loss of power (Howell, 2007; Tabachnick & Fidell, 2013). Expectation Maximisation was chosen over the traditional method of Mean Substitution because Expectation Maximisation contains less bias of standard error (Tabachnick & Fidell, 2013). Use of Expectation Maximisation with inferential statistics has been criticised because it does not entirely resolve issues with standard error (Graham, Cumsille, & Elek-Fisk, 2003; Tabachnick & Fidell, 2013); however, this limitation can be overcome if only small amounts of data are missing, an appropriate Expectation Maximisation program is utilised, and some caution is taken when interpreting inferential results (Tabachnick & Fidell, 2013). These precautions were taken in the current research.

### **Outliers**

Outliers were considered to be those data points which had a standardised Z score above 3.29 (Tabachnick & Fidell, 2013). A total of 10 outliers were identified in the overall sample and no identifiable pattern was observed in their occurrence. As recommended by Tabachnick and Fidell (2013), all outliers were altered to be one unit above the highest

acceptable (non-outlier) data point. This method allows extreme values to be retained in the data set while reducing their impact on results (Tabachnick & Fidell, 2013).

### **Data transformation**

Data transformation was considered in the current study due to several instances of deviation from normality (assessed via analysis of residual plots) and the aforementioned outliers. However, log transformation did not prove beneficial; it often made no improvement to the skew of data, caused kurtosis distortions, and certain variables were unable to be transformed at all. There is evidence to suggest that data transformation can negatively influence interpretation of results (Tabachnick & Fidell, 2013) and as all planned analysis were able to proceed with untransformed data, it was deemed more appropriate to leave data in its non-transformed form (S. Humphries, personal communication, July 10, 2014).

### **Selecting statistical analyses**

The reason each statistical analysis was selected is presented in the relevant manuscript, and thus will not be fully discussed here. Overall, elements considered when selecting analyses included sample size, statistical assumptions, how best to address the aims of the study, and appropriate post-hoc analyses.

### **Ethical considerations**

Ethical approval for the current research was granted by the Massey University Ethics Committee in October 2013 (Application 13/68). The main ethical considerations within the current research concerned confidentiality, cultural appropriateness, and providing professionals with avenues to seek psychological help, should they need it.

First, to ensure that participants' responses remained confidential, certain demographic questions, such as queries regarding their workplace, were excluded as this may have rendered certain participants identifiable. In addition, professional groups with extremely low respondents (i.e., psychiatrists) were excluded from analysis to protect their confidentiality. Participants had the option of providing their name and contact details if they

wanted to receive a summary of the research results or go into the draw to win a book voucher; this was a separate data file from the survey and was not linked with their survey responses in any way. Data was stored on a password protected computer, or in a locked filing cabinet.

To ensure that the survey items were culturally appropriate, expertise was sought by Maori researcher and clinical psychologist Dr. Simon Bennett, School of Psychology, Massey University. Dr Bennett also agreed to be available to discuss any cultural issues that may arise throughout data collection or analysis. In addition, ethnicity response options were taken from the New Zealand Census to ensure that they were culturally appropriate for the current population.

Finally, it was thought that asking participants to recount their direct and vicarious traumatic exposure may elicit negative psychological reactions for some people. In the unlikely event that this did occur, participants were provided with avenues where they could seek support on the Participant Information Sheet (their supervisor, colleagues, professional body, or general practitioner), see Appendix B.

**Chapter Four:****Coping following vicarious traumatic exposure: The benefits of social support, self-care, and humour.**

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This chapter, presented as a manuscript to be submitted for publication, presents the first empirical results of the current study. It explores how coping strategies may influence the psychological outcome of vicarious traumatic exposure. In some ways, this chapter could be thought of as “setting the scene” for the more in-depth analyses that will be presented in subsequent manuscripts. It provides mean values and basic correlations for the variables of interest in the current study, and also presents the results of some more complex analyses regarding prediction and mediation. By the end of this manuscript the reader should have a good understanding of the relationship between coping variables and STS and VPTG in the current study.

### **Abstract**

Health professionals are often vicariously exposed to traumatic events due to their work with trauma survivors. In order to cope with vicarious traumatic exposure, health professionals must utilise a range of coping strategies. Three such coping strategies are social support, self-care, and humour. The current study aimed to investigate the relationship between these three coping strategies and two psychological reactions to vicarious traumatic exposure - secondary traumatic stress (STS) and vicarious posttraumatic growth (VPTG). It was hypothesised that these three coping strategies would predict lower levels of STS and higher levels of VPTG. It was also hypothesised that social support, self-care and humour would mediate the relationship between vicarious traumatic exposure and VPTG. Results suggested that self-care and social support from friends and family were predictive of lower levels of STS. Humour, self-care, and peer social support were found to be predictive of higher levels of VPTG. Peer support was found to be a significant partial mediator of the relationship between vicarious traumatic exposure and VPTG. Implications of these results and directions for future research are discussed.

*Keywords: Vicarious posttraumatic growth, secondary traumatic stress, coping, social support, humour, self-care, mediation*

### **Overview**

Health professionals are frequently vicariously exposed to horrific and traumatising events through their work (Cornile & Woodard Meyers, 1999; Crabbe, Bowley, Boffard, Alexander, & Klein, 2004). Accounts of rape, sexual abuse, facial injuries, shootings, stabbings, motor vehicle accidents, attempted or completed suicide, and disasters such as fire were among the traumatic events doctors and nurses reported being exposed to in the workplace (Crabbe, et al., 2004). Cornile and Woodard Meyers (1999) reported that, of the 360 child protective service workers in their sample, 99% had been vicariously exposed to child sexual abuse, 72% worked with children who had witnessed death, and 97% worked with children who had experienced a threat to their physical well-being, among a range of other traumatic events. It was estimated that each child protective services worker had been vicariously exposed to an average of seven traumatic events. Such incidents can be classed as *vicarious traumatic exposure*, a term used in the literature to refer to exposure to direct trauma survivors and/or aversive details of a traumatic event, without being directly exposed to the event itself (e.g., Brockhouse, Msetfi, Cohen, & Joseph, 2011). While the negative psychological effects of vicarious traumatic exposure, termed *secondary traumatic stress* (STS), have been well documented (e.g., Schauben & Frazier, 1995), there is also research to suggest that vicarious traumatic exposure can result in positive psychological change (e.g., Arnold, Calhoun, Tedeschi, & Cann, 2005), a phenomenon termed *vicarious posttraumatic growth* (VPTG). This research aims to investigate how coping strategies relate to STS and VPTG, and whether coping strategies provide a pathway from vicarious traumatic exposure to VPTG.

### **Psychological reactions to vicarious traumatic exposure**

STS refers to the development of symptoms akin to those of Posttraumatic Stress Disorder among direct trauma survivors that arise as a result of vicarious traumatic exposure (Canfield, 2005). Symptoms of STS reported among health professionals include intrusive

thoughts and images, hyperarousal, negative emotions such as horror and pain, and negative changes to the way health professionals view themselves and the world (Bride, 2007; Steed & Downing, 1998). The impact of STS can be devastating (e.g., Naturale, 2007) and symptoms have been reported among a range of health professionals, including medical staff (e.g., Meadors, Lamson, Swanson, White, & Sira, 2009-2010) therapists (for a review see Canfield, 2005), social workers (e.g., Bride, 2007), and counsellors (for a review see Arvay, 2001). In addition, Sexton (1999) reviewed the literature regarding the organisational costs of psychological distress following vicarious traumatic exposure and reported high staff turnover; a negative shift in workplace culture; loss of energy, commitment, and optimism; and professional boundary violations. Therefore, the negative effects of STS are widespread and manifest on a personal and organisational level.

However, recent research has also suggested that vicarious traumatic exposure can have a positive psychological impact. VPTG refers to positive psychological change that occurs as a consequence of vicarious traumatic exposure (Arnold et al., 2005). Examples of VPTG reported in the literature include shifts in life values and priorities, positive spiritual change, an increase in personal strength, enhanced interpersonal relationships, character changes, and professional growth (Barrington & Shakespeare-Finch, 2013). VPTG appears to be the “silver lining” of vicarious traumatic exposure; despite the risk of negative psychological consequences (e.g., Schauben & Frazier, 1995), it also increases the opportunity for positive psychological change. To date VPTG has been documented among medical staff (e.g., Shiri Wexler, Alkalay, Meiner & Kreitler, 2008a), therapists (e.g., Arnold et al., 2005), social workers (e.g., Gibbons, Murphy & Joseph, 2011) and many other professionals working with trauma survivors (for a review see Manning-Jones, de Terte, & Stephens, 2015).

### **Coping following vicarious traumatic exposure**

Lazarus and Folkman (1984) defined coping as behavioural and cognitive strategies used to manage stressful situations. Health professionals have reported utilising a range of coping strategies in the work place including religion and spirituality, debriefing with colleagues, humour, accepting their professional limits, separating their professional and personal lives, and engaging in pleasurable events in their spare time (e.g., Clemans, 2004; Markwell & Wainer, 2009; Marriage & Marriage, 2005). Among clinical and administrative staff working with refugees (Barrington & Shakespeare-Finch, 2014) important organisational coping strategies included seeking supervision, receiving support from colleagues, professional development and a positive workplace culture, while personal coping strategies tended to focus on self-care (e.g., meditation, exercise, and healthy eating), and maintaining realistic expectations of therapeutic change.

It is possible that coping strategies influence health professionals' psychological reactions to vicarious traumatic exposure in several ways. First, coping strategies may act as protective factors against STS, that is, it is possible that the more health professionals engage in coping strategies in the workplace and in their personal lives, the less likely they are to experience symptoms of STS. Second, coping strategies may facilitate VPTG. It may be that the more health professionals utilise coping strategies, the more likely they are to experience positive psychological growth as a result of their challenging occupational experiences. Third, it is possible that coping strategies act as a pathway from vicarious traumatic exposure to VPTG, that is, they may mediate the relationship. It may be that following traumatic exposure health professionals engage in various coping strategies to help them deal with their experience, and in turn these coping strategies promote VPTG. Three coping strategies that have been reported to be among the most commonly used coping strategies among health professionals, social support, self-care, and humour, will be explored here, with a particular

focus on how these coping strategies may influence the psychological outcome of vicarious traumatic exposure.

### **Social support**

Social support, including supervision, peer support, and support from friends and family, has been indicated by health professionals to be one of their most vital and frequently used coping strategies (Iliffe & Steed, 2000; Pearlman & Mac Ian, 1995; Pistorius, Feinauer, Harper, Stahmann & Miller, 2008). Schaefer and Moos (1992) suggested that, following traumatic exposure, social support functions in three ways to aid coping; it enhances social resources through promoting interpersonal relationships, enhances personal resources such as character strengths, and aids the development of further coping skills. Empirical research has shown social support to reduce work-related stress, reduce the risk of burnout, and protect against STS (Killian, 2008; Townsend & Campbell, 2009). It has been claimed that social support helps to mitigate a sense of isolation (Pearlman, 1995); without it health professionals can become dehumanised and less caring, both in their personal and professional lives (Salston & Figley, 2003). In addition, social support has been linked to the development of VPTG (e.g., Linley & Joseph, 2005, 2007). Joseph (2011) claimed that talking through a traumatic experience with supportive others enhances one's ability to process a traumatic event, adopt new perspectives, gain new insights, and ultimately achieve posttraumatic growth. It appears that social support not only reduces the negative effects of vicarious traumatic exposure, but also enhances the benefits of such an experience.

Peer support has been indicated as a particularly beneficial form of social support among health professionals (e.g., Naturale, 2007). Previous research has reported both counsellors (Iliffe & Steed, 2000) and social workers (Hodgkinson & Steww, as cited in Dunkley & Whelan, 2006) to identify peer support as their most frequently used coping strategy. Among mental health professionals, 95% of participants reported engaging in peer

support, which surpassed the percentage who reported experiencing support from supervisors (58%), partners (65%), family/relatives (14.2%), and friends (42.7%; Folette, Polusny & Milbeck, 1994). Furthermore, peer support was reported to be a significant negative predictor of STS among nurses (Townsend & Campbell, 2009), as well as being associated with greater VPTG (Tehrani, 2010). According to Catherall (1995), peers have the power to normalise and reduce the impact of STS, help correct distorted perceptions, offer objective viewpoints on clinical issues, offer a place to express reactions that may be inappropriate to share with clients, provide helpful resources, and help to maintain a therapeutic connection with clients. Therefore, peers may be a particularly powerful form of social support.

Very little research has investigated the role social support may play in the positive association between vicarious traumatic exposure and VPTG. Only one study has investigated social support as a potential mediating variable of the relationship between vicarious traumatic exposure and VPTG, and no significant results were reported (Brockhouse, et al., 2011). However, this study only examined organisational support; it did not consider the wider construct of social support, or other domains of social support that have been linked with VPTG, such as peer support (e.g., Tehrani, 2010). Social support may mediate the relationship between vicarious traumatic exposure and VPTG through peers who provide a supportive avenue to process the event and gain new perspectives and insights (Joseph, 2011), which in turn could facilitate VPTG. Further research that investigates the mediating effect of overall social support and individual domains of social support would be fruitful.

### **Self-care**

*Self-care* refers to a wide range of activities that are engaged in to maintain wellbeing. Harrison and Westwood (2009) categorised the self-care strategies reported by their sample of mental health therapists into six domains: physical (e.g., healthy eating, exercise), mental

(e.g., continued education, mindful awareness), emotional (e.g., personal therapy, trusting relationships), spiritual (e.g., meditation, meaning and purpose in life), aesthetic (e.g., noting beauty in life), and work-life balance (e.g., maintain a healthy equilibrium). Such strategies have also been noted among counsellors (Iliffe & Steed, 2000), social workers (Naturale, 2007) and therapists working with traumatised children (Lonergan, O'Halloran & Crane, 2004). Self-care strategies have been reported to protect against STS, burnout, and mental illness (Lambert & Lawson, 2013), as well as enhance the likelihood of VPTG (e.g., Arnold et al., 2005). These studies illustrate the use of self-care to effectively combat work-related stress among health professionals, and enhance their ability to identify benefits of their work.

It is possible that self-care also acts as a pathway between vicarious traumatic exposure and VPTG, although empirical research testing this hypothesis is yet to be conducted. Splevins, Cohen, Joseph, Murray, and Bowley (2010) reported that following vicarious traumatic exposure, professionals turned to self-care strategies to enable them to cope with their experience. As well as reducing their psychological distress, this may also provide a pathway for health professionals to reach VPTG. Empirical research investigating whether self-care mediates the relationship between vicarious traumatic exposure and VPTG would address a current gap in the literature.

### **Humour**

While less researched than social support and self-care, humour has also been listed among the most common coping strategies utilised by health professionals (Follette, Polusny, Milbeck, 1994; Schauben & Frazier, 1995). The use of humour in the workplace has been associated with lower levels of stress (Moran & Hughes, 2006) and fewer STS symptoms (Schauben & Frazier, 1995). Wear, Aultman, Zarconi and Varley (2009) reported that their sample of doctors used humour in the workplace to release frustration, stress, anger and tension; distance themselves from their work; and increase communication with peers.

Research has yet to investigate the relationship between humour and VPTG; however, research among direct trauma survivors suggests that humour is associated with greater psychological growth following trauma (e.g., Schroevers & Teo, 2008). Theories of humour suggest that it acts to release tension and foster a new perspective on initially distressing situations (Moran & Shakespeare-Finch, 2003). It may be that this function also allows humour to act as a mediating variable between vicarious traumatic exposure and VPTG. The relationship between humour and VPTG represents a current gap in the literature, and an area where further research is needed.

### **The current study**

The current study aims to investigate how social support, self-care, and humour relate to the psychological outcomes of vicarious traumatic exposure. It is hypothesised that health professionals engage in these coping strategies following vicarious traumatic exposure, and in turn these coping strategies increase the likelihood of posttraumatic growth, creating a pathway from vicarious traumatic exposure to VPTG. It is also thought that engaging in these coping strategies will be protective against STS. Specifically, it is hypothesised that:

- a) Social support, self-care and humour will be associated with lower levels of STS and higher levels of VPTG.
- b) Of the three forms of social support, peer support will have the strongest association with STS and VPTG.
- c) Social support, self-care, and humour will mediate the vicarious traumatic exposure-VPTG relationship; that is, they will account for, or partially account for, the relationship between vicarious traumatic exposure and VPTG.

### **Participants**

A sample of 365 health professionals participated; 103 social workers, 76 nurses, 72 counsellors, 70 psychologists, and 44 medical doctors. The majority of participants were female (82%) and currently living in New Zealand (97%). Participants most commonly

identified their ethnicity as New Zealand European/ Pākehā (72%), Other European (12%), New Zealand Māori (4%), Australian (2%), or a combination of response options (2%).

Participants had a mean age of 48.20 years and had worked in their field for an average of 17.20 years. On average, participants spent 13.48 hours of their typical working week with trauma clients, and in the past seven days had spent an average of 10.00 hours with trauma clients.

### Measures

**Secondary traumatic stress.** The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) was used to measure STS. This 17-item scale, designed for use with professionals working with trauma survivors, was constructed to align with the revised fourth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) diagnostic criteria of Posttraumatic Stress Disorder. Therefore it measures symptoms of intrusion, avoidance, and hyperarousal. Previous research has shown the STSS to be a psychometrically sound measure (Bride et al., 2004). Cronbach's alpha in the present study = .93.

**Vicarious posttraumatic growth.** The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to measure VPTG in the current study. This 21-item scale measures five distinct forms of growth: relating to others, identifying new possibilities, personal strength, spiritual change, and appreciation of life. Participants rate the extent to which they have experienced the growth described in each item on a 6-point Likert scale. The PTGI has good psychometric properties (Tedeschi & Calhoun, 1996), and has been used numerous times in previous research to measure VPTG (e.g., Linley & Joseph, 2007). Consistent with previous research (e.g., Shiri Wexler, Alkalay, Meiner & Kreitler, 2008b), participants were asked to focus on their work with trauma victims before filling out this measure. Wording of response options was altered from "I have/have not experienced this

change as a result of my crisis” to “I have/have not experienced this change as a result of *my work*”. Cronbach’s alpha in the present study =.95.

**Social support.** The Social Support Scale (SSS; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975) assesses perceived level of emotional and instrumental support from three sources: supervisors, co-workers (peers) and family/friends (thus creating three subscales). For each item, participants are required to indicate how much support they get from each source using a 5-point Likert scale ranging from 1 (“Very little”) to 5 (“A great deal”). In addition to the four original items, an additional item was included that asks participants to indicate how much each of the support sources helps them to feel prepared for their work. The original response format was applied to this additional question. For the remainder of this article the term “Total Support” will be used to refer to participant’s total scores on the scale, and the terms “Supervisory Support”, “Friend/family Support” and “Peer support” will be used to refer to the three subscales. Cronbach’s alpha in the present study =.87.

**Self-care.** The Self-Care Utilisation Questionnaire (SCUQ; Goncher, Sherman, Haskins, & Barnett, 2013) is a 30-item scale that assesses the extent to which participants utilise a range of self-care activities, using a 5-point Likert scale. Attending to spiritual and religious needs, taking the time to engage in physical activity, and talking to others when stressed are examples of the self-care strategies included in this measure. The SCUQ was originally designed for use with students pursuing the degree of clinical psychology. For the current study this measure was adapted for use with health professionals; where items referred to the graduate training program or “clinical work”, items were changed to refer to “work” generally. Where items referred to “psychology” as an interest area, items were altered to refer to “healthcare”. Cronbach’s alpha in the present study =.91.

**Humour.** The Self-Enhancing Humor subscale of the Humor Styles Questionnaire (HSQ; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) is an 8-item measure that assesses

the use of humour as a coping strategy and the extent that participants can maintain a positive and humorous outlook on life despite adversity. Participants rate the extent to which they agree with each item using a 7-point Likert scale. Cronbach's alpha in the present study=.82.

**Vicarious traumatic exposure.** Vicarious traumatic exposure was measured by asking participants to indicate the average number of hours spent with trauma clients per week.

### **Procedure**

Ethical approval for the current study was granted by the Massey University Ethics Committee. Participants were recruited through their professional bodies, workplaces, online directories, health care organisations, or through social media. Questionnaires were administered via an online survey that took approximately 15-20 minutes to complete. Participants were provided with a Participant Information Sheet prior to filling out the survey and were provided with the option to request a summary of results upon completion. In addition, participants were entered into a prize draw to win one of three \$50 book vouchers as a token of the researchers' appreciation regarding their participation.

### **Statistical analysis**

SPSS version 21 was used to conduct statistical analyses. A t-test analysis was conducted to assess for gender differences. Pearson r correlations and stepwise regression analyses were computed to investigate the STS-VPTG relationship. Stepwise regression was chosen because it enables the identification of the unique variance that each individual predictor variable explains of the outcome variable. Assumptions of independence, linearity, multicollinearity, and adequate sample size (for stepwise regression at least 40 cases per independent variable; Tabachnick & Fidell, 2013) were satisfied for all regression analyses. A total of 10 outlier values were identified and reduced to one unit above the highest non-outlier value (Tabachnick & Fidell, 2013); no identifiable pattern was observed in their occurrence. Assumptions of multivariate normality and heterodasticity were satisfied for

those analyses using PTGI scores as the dependent variable. For those analyses using STSS scores as the dependent variable, analysis of histogram and normal P-P plots suggested slight heterodasticity and deviation from normality; however, it has been argued that regression is robust to such violations (Li, Wong, Lamoureux, & Wong, 2012; Tabachnick & Fidell, 2013; van Belle, 2002). However, these violations should be taken into consideration when interpreting results.

To investigate mediation, regression analyses were used to compute the necessary statistical information, which was then imputed into MedGraph (Jose, 2013a), a software programme that assesses the statistical significance of the proposed mediation by calculating Sobel's Z-score, confidence intervals, and effect sizes. Assumptions of linearity, independence of error, and multicollinearity were met for all analyses. Assumptions of normality were met for regression analyses with PTGI scores as the dependent variable. Regression analyses with Peer Support as the dependent variable displayed a slight deviation from normality, however, as described above, regression is thought to be robust to minor deviations (Li, Wong, Lamoureux, & Wong, 2012; Tabachnick & Fidell, 2013; van Belle, 2002).

## **Results**

### **Overview**

Table 4.1 presents the descriptive statistics for the current sample. Table 4.2 displays Pearson r correlations between key variables.

Table 4.1.

*Sample means and standard deviations (in parenthesis) for key variables.*

<b>Measure</b>	<b>Mean (standard deviation)</b>
Vicarious Traumatic Exposure	13.49 (11.68)
STSS	30.01 (10.14)
PTGI	78.97 (21.59)
Total Support	51.91 (10.48)
<i>Supervisory support</i>	17.41 (5.35)
<i>Peer support</i>	16.80 (4.75)
<i>Friend/family support</i>	17.71 (5.09)
SCUQ	109.94 (14.52)
HSQ	40.30 (7.49)

*Note.* TSS= Traumatic Stress Schedule. STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. SCUQ= Self-Care Utilisation Questionnaire. HSQ= Humor Styles Questionnaire.

Table 4.2.

*Pearson's r correlations between coping variables and vicarious traumatic exposure, STSS scores, and PTGI scores*

	<b>Vicarious Traumatic Exposure</b>	<b>STSS</b>	<b>PTGI</b>
Total Support	0.1	-0.30**	0.12*
<i>Peer Support</i>	0.16**	-0.16*	0.18**
<i>Supervisory Support</i>	-0.01	-0.24**	0.04
<i>Friend/family Support</i>	-0.07	-0.26**	0.02
SCUQ	0.04	-0.34**	0.28**
HSQ	0.04	-0.06	0.28**

\*  $p < .05$  \*\*  $p < .01$ . *Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. SCUQ= Self-Care Utilisation Questionnaire. HSQ= Humor Styles Questionnaire.

### Secondary traumatic stress

A stepwise regression analysis was performed to assess which coping strategies significantly predicted STSS scores. Those coping strategies which had a significant correlation with STSS scores were entered as predictor variables, that is, Peer Support, Supervisory Support, Friends/family Support, and SCUQ scores (Table 4.2). Total Support was not included due to high levels of multicollinearity with each individual form of social support. Results of this analysis are presented in Table 4.3. The total model explained 15% of the variance in STSS scores,  $F(2,362)= 31.74$ ,  $p < .001$ ,  $\text{Adj } R^2 = .15$ . SCUQ scores predicted 11% of the variance in STSS scores, while Friend/family Support explained a further 4% of the variance over and above SCUQ scores. Peer Support and Supervisory Support were not found to be significant predictors over and above the SCUQ scores and Friends/family Support.

Table 4.3.

*Stepwise regression analyses with STSS and PTGI scores as the dependent variables and coping variables as the predictors.*

Dependent variable		<i>b</i>	<i>t</i>	$R^2$ change	<i>p</i>
STSS scores					
	SCUQ	-0.34	-6.83	0.11	<0.001
	Friend/family Support	-0.19	-3.88	0.04	<0.001
	Supervisory Support	-0.10	-1.90	--	0.06
	Peer Support	-0.03	-0.57	--	0.57
PTGI scores					
	HSQ	0.28	5.61	0.08	<0.001
	SCUQ	0.22	4.32	0.05	<0.001
	Peer Support	0.11	2.18	0.01	0.03

*Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. SCUQ= Self-Care Utilisation Questionnaire. HSQ= Humor Styles Questionnaire.

### **Vicarious posttraumatic growth**

A second stepwise regression analysis was performed to assess whether those coping strategies significantly correlated to PTGI scores (see Table 4.2) also acted as significant predictors. Peer Support, SCUQ scores, and HSQ scores were entered as predictor variables; again Total Support was not included due to multicollinearity. Results are presented in Table 4.3. Overall, the predictor model was able to explain 13% of the variance in participants' PTGI scores,  $F(2,362) = 18.95, p < .001, \text{Adj } R^2 = .13$ . HSQ scores predicted 8% of the variance in PTGI scores, SCUQ scores explained a further 5% over and above HSQ scores, and Peer Support explained a further 1% over and above HSQ and SCUQ scores combined.

### **Investigating coping variables as mediators**

A significant positive Pearson's  $r$  correlation was found between Vicarious Traumatic Exposure and PTGI scores ( $r = 0.17, p = <.01$ ). Overall, Total Support was significantly related to PTGI scores but not Vicarious Traumatic Exposure, as were Supervisory Support and Friends/Family Support. SCUQ and HSQ scores were also related to PTGI scores but not Vicarious Traumatic Exposure. However, Peer Support was significantly positively associated to Vicarious Traumatic Exposure and PTGI scores, and thus qualified for further investigation as a mediating variable (Baron & Kenny, 1986).

Three regression analyses were computed to test the mediating effects of Peer Support, as outlined by Jose (2013a). First, PTGI scores were regressed onto Vicarious Traumatic Exposure; Vicarious Traumatic Exposure was found to be a significant predictor of PTGI scores (Table 4.4). Second, PTGI scores were simultaneously regressed onto Vicarious Traumatic Exposure and Peer Support (Table 4.5); Peer Support was found to be a significant predictor of PTGI scores and the standardized regression value reduced compared to the first regression (a necessary condition of mediation; Jose, 2013b). Finally, Peer Support was regressed onto Vicarious Traumatic Exposure; Vicarious Traumatic Exposure

was found to be a significant predictor of Peer Support (Table 4.6). Information (sample size, intercorrelations, unstandardized and standardised regression coefficient, standard error, part correlations, and  $R^2$  values) from all three analyses were then entered into MedGraph (Jose, 2013a). Results suggested that Peer Support was a significant partial mediator of the relationship between Vicarious Traumatic Exposure and VPTG,  $p < 0.05$ . Peer Support accounted for 14.7% of the relationship between Vicarious Traumatic Exposure and VPTG.

Table 4.4.

*The standardised beta values, Multiple R, total  $R^2$ , and  $R^2$  change for a regression of PTGI on Vicarious Traumatic Exposure.*

<i>Variable</i>	<i>Step 1</i>
Vicarious Traumatic Exposure	0.17**
<b>Multiple R</b>	0.17
<b>Total <math>R^2</math></b>	0.03
<b>Adjusted <math>R^2</math></b>	0.03

\*  $p < .05$  \*\*  $p < .01$

Table 4.5.

*The standardised beta values, Multiple R, total  $R^2$ , and  $R^2$  change for a regression of PTGI on Vicarious Traumatic Exposure and Peer Support.*

<i>Variable</i>	<i>Step 1</i>
Vicarious Traumatic Exposure	0.14**
Peer Support	0.16**
<b>Multiple R</b>	0.23
<b>Total <math>R^2</math></b>	0.05
<b>Adjusted <math>R^2</math></b>	0.05

\*  $p < .05$  \*\*  $p < .01$

Table 4.6.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a regression of Peer Support on Vicarious Traumatic Exposure.*

<i>Variable</i>	<i>Step 1</i>
Vicarious Traumatic Exposure	0.16*
<b>Multiple R</b>	0.16
<b>Total R<sup>2</sup></b>	0.02
<b>Adjusted R<sup>2</sup></b>	0.02

\* p< .05 \*\* p< .01

### **Gender effects**

An independent samples t-test was conducted to assess for gender effects. No significant gender effects were evident among any of the key variables included in the current study.

### **Discussion**

The current study aimed to investigate the effect of coping strategies on psychological reactions to vicarious traumatic exposure, specifically STS and VPTG, among health professionals. It was hypothesised that social support, self-care and humour would be negatively associated with STS, positively associated with VPTG, and would act as mediating variables in the relationship between vicarious traumatic exposure and VPTG. Results partially supported these hypotheses.

### **Social support**

Overall social support ('Total Support') was found to be significantly positively associated with VPTG, and significantly negatively associated with STS. All three forms of social support (peer support, support from supervisors, and support from friends and family) were significantly negatively associated with STS. In addition, social support from friends

and family was found to be a significant negative predictor of STS and accounted for 4% of the variance in STS over and above the variance explained by self-care. Social support may protect against STS by increasing social and personal resources and facilitating the development of further coping strategies (Schaefer & Moos, 1992).

Peer support was significantly positively associated with VPTG, and was found to be a significant positive predictor, although it accounted for only an additional 1% of the variation in participants' PTGI scores over and above the variance explained by humour and self-care. Furthermore, peer social support was found to be a significant partial mediator of the relationship between vicarious traumatic exposure and VPTG. Peers may increase their level of support when a colleague experiences vicarious traumatic exposure, possibly self-initiated or perhaps in response to their colleague reaching out for help. In turn, the utilisation of peer support may increase the likelihood that the affected individual will develop VPTG. Catherall (1995) argued that peers have the ability to provide professionals with an objective perspective, help to correct distorted perceptions, offer an appropriate place to express reactions that may be unsuitable to express in front of clients, provide useful resources, and help to maintain a therapeutic alliance with clients. These may be some of the factors that contribute to the mediating effects of peer support. While a direct effect between vicarious traumatic exposure and VPTG remained, the peer support pathway accounted for almost 15% of the association between vicarious traumatic exposure and VPTG. Results are consistent with research that recommends health professionals who work with trauma victims to seek social support from their peers (McCann & Pearlman, 1990), and with research that has reported a positive association between peer support and VPTG (Tehrani, 2010). However, it should be noted that, while peers support was a statically significant mediator, the practical effect may be very small; peers support was found to explain a very small amount of the

variance in VPTG over and above other coping variables and as a mediating variable is explains 15% of a modest association between vicarious traumatic exposure and VPTG.

It was hypothesised that peer support would be the most beneficial form of social support; however, the results of the current study appear to suggest that different forms of social support are beneficial in different ways. While peer support does appear to be particularly beneficial where VPTG is concerned, social support from friends and family appears to be the form of social support most associated with lower levels of STS. It may be that friends and family are better equipped to provide support when things go wrong (i.e., in the face of STS), while peers may provide the type of social support needed to reach a higher level of functioning and experience VPTG. Therefore, results suggest that different forms of social support all have an important role in enhancing the wellbeing of health professionals. Overall, findings are consistent with research that has identified social support to be one of the most vital coping strategies available to health professionals (e.g., Iliffe & Steed, 2000).

### **Self-care**

Results supported the hypothesis that self-care would be negatively associated with STS, and positively associated with VPTG. Self-care was the primary negative predictor of STS, explaining 11% of the variance in participants' STSS scores, and was a positive predictor of VPTG, explaining 5% of the variance in participants' PTGI scores over and above the variance explained by humour. Self-care was the only coping strategy that functioned to simultaneously predict lower levels of STS and higher levels of VPTG, highlighting its vital role in the workplace. It may be that it simultaneously acts as a protective factor against STS, while facilitating the VPTG process. However, this causation-type hypothesis is only speculative.

### **Humour**

In contrast with previous research (e.g., Schauben & Frazier, 1995), a negative association between humour and STS was not found. It would seem that participants engaged

in the use of humour as a coping strategy regardless of whether they were experiencing STS. However, results did support the hypothesis that humour would be associated with greater VPTG. Humour was found to be the primary predictor of VPTG, accounting for 8% of the variance in participants' PTGI scores. Previous research has reported a positive relationship between humour and posttraumatic growth among direct trauma survivors (e.g., Schroevers & Teo, 2008), and the current study provides the first piece of empirical research confirming these findings among populations vicariously exposed to trauma. It is possible that humour facilitates the development of VPTG by aiding in the development of new perspectives (Moran & Shakespeare-Finch, 2003), although again such causation is only speculative.

### **Levels of vicarious posttraumatic growth**

The level of STS recorded in the current sample was comparable to that reported in previous literature (e.g., Meadors et al., 2009-2010). However, the reported level of VPTG in the current study was higher than that previously reported (e.g., Brockhouse, Msetfi, Cohen, & Joseph, 2011; Kjellenberg, Nilsson, Daukantaitė, & Cardeña, 2013; Shiri et al., 2008a). New Zealand has been identified as one of the happiest and most optimistic countries in the world (University of Kansas, 2009; Halliwell, Layard, & Sachs, 2013); therefore one possibility could be that New Zealand culture fosters the optimistic outlook that has been linked to the development of posttraumatic growth (Prati & Pietrantonio, 2009). Alternatively, there may be more organisational supports available in New Zealand than other countries, or the current sample engaged in a greater level of coping strategies than previous samples, facilitating greater VPTG.

### **Limitations**

There are several limitations to consider. First, the current study focused on just three of the many coping strategies available to health professionals. Other coping strategies that have featured in the literature include mental distraction/avoidance, behaviours aimed at promoting social change (e.g., advocacy), and drug and alcohol use (Folette et al., 1994). The

association between some of these coping strategies (e.g., drug and alcohol use) and VPTG is still to be explored. Future research that aims to investigate the impact of a wider range of coping strategies on STS and VPTG among health professionals would be beneficial.

Second, while three different types of social support were included in the current study, this same level of detail was not provided for humour or self-care. Only self-enhancing humour was included in the current study. This aspect of humour was chosen because it focuses on the use of humour as an adaptive coping strategy in the face of adversity (Martin et al., 2003). However, health professionals may engage in other forms of humour as coping strategies. Forms of humour that could be considered in future research include affiliative humour, the use of humour to make others laugh; aggressive humour, for example sarcasm; and self-defeating humour, the use of humour at one's own expense. In addition, black humour, humour about unsavoury topics, has been reported to be a useful coping strategy among health professionals (e.g., Alexander & Atcheson, 1998). Development of a robust black humour scale would be a useful contribution to the humour and VPTG fields of literature. In addition, research that investigates the benefits of specific types of self-care activities (e.g., physical self-care compared to spiritual self-care) would provide informative and fruitful findings. A self-care scale with distinct measureable self-care factors would be a useful addition to the current body of literature.

Third, the current study only provided results for the sample as a whole; however, it may be that the benefits of coping variables differ between professions. Furthermore, coping strategies may differ between types of health professionals, for example, some may rely more on supervision, while others may prefer self-care strategies in order to maintain their wellbeing. This depth of analysis was outside the scope of the current study, but would be a valuable contribution to future research.

Fourth, there are several limitations to the design of the current study that need to be acknowledged. The current study is entirely cross-sectional in design, and assumptions regarding causality cannot be made. Therefore, while the author has speculated that self-care may “facilitate” VPTG, for example, the results of the current study only show whether variables predict certain outcomes, rather than causing outcomes to occur. In addition, the current study relies entirely on self-report data. Thus, it is impossible to know whether participants have accurately reported their level of vicarious traumatic exposure, or their engagement in self-care activities, for example. However, this is a limitation to much of the psychological literature, and a study that involved objective recording of vicarious traumatic exposure, coping, and psychological outcomes would be far more difficult and costly to produce. Regarding measurement, the current study used the average number of hours per week that participants were exposed to trauma survivors as the measure of vicarious traumatic exposure. This assumes that every hour spent with a trauma survivor was spent on trauma-related issues, which may not have been the case. An alternative measurement of vicarious traumatic exposure could include recording the number of discrete vicarious traumatic experiences participants had been exposed to (e.g., Cornile & Woodard Meyers, 1999). Measurement of vicarious traumatic exposure in this way would have been able to control for the effects of multiple versus single exposures. Future research could investigate the mediating role of peer support using an alternate measure of vicarious traumatic exposure.

### **Summary**

Overall, the current findings suggest that peer social support, self-care, and humour are important coping strategies that positively predict VPTG. Social support from family and friends and self-care also negatively predict STS. In addition, results provide preliminary evidence for the mediating role of peer social support in the relationship between vicarious traumatic exposure and VPTG, although effects are small and should be replicated in larger

samples. It may be that peers act as a pathway, helping health professionals move from vicarious traumatic exposure to positive psychological growth. These results suggest that engaging in a range of coping strategies is important for health professionals, and that fostering peer interaction in the workplace may be particularly beneficial.



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STATEMENT OF CONTRIBUTION  
TO DOCTORAL THESIS CONTAINING PUBLICATIONS

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

**Name of Candidate:** Shekinah Manning-Jones

**Name/Title of Principal Supervisor:** Ian de Terte

**Name of Published Research Output and full reference:**

Manning-Jones, S., de Terte, I., & Stephens, C (2015). Coping following vicarious traumatic exposure: The benefits of social support, self-care, and humour. Manuscript submitted for publication.

**In which Chapter is the Published Work:** Chapter 4

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**Chapter Five:**  
**Health professionals' reactions to vicarious traumatic exposure; Are there differences  
across specialities?**

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The preceding chapter investigated VPTG, STS and coping among the entire sample. In the limitations section it was suggested that perhaps the use of coping strategies differs among types of health professionals. For example, some health professionals may rely more on supervision, while others may place more emphasis on self-care. This chapter, presented in the form of a manuscript to be submitted to an academic journal, takes a deeper and more detailed look at each of these variables within the five individual groups of health professionals included in the current study. This manuscript aims to provide readers with a more detailed picture of VPTG, STS, and coping within the current study, and a greater understanding around how the included professional groups differ from one another. Health professionals are a heterogeneous group who work with trauma survivors in varying ways, so it is important to understand similarities and differences in the way they cope with, and psychologically respond to, vicarious traumatic exposure. Results may draw attention to professions particularly vulnerable to STS, and may highlight certain professions that could benefit from developing their repertoire of coping strategies.

### **Abstract**

The current study investigates whether the psychological impact of working with trauma survivors, and the coping strategies utilised to deal with this, differs between types of health professionals. Limitations in previous research are addressed by providing a systematic investigation of inter-speciality differences among five clearly defined professional groups: social workers (n=103), nurses (n=76), counsellors (n=72), psychologists (n=70), and medical doctors (n=44). Key variables were secondary traumatic stress (STS), vicarious posttraumatic growth (VPTG), social support, self-care and humour. Social workers reported experiencing the highest levels of STS and VPTG, while psychologists reported experiencing the lowest levels of both variables. Regarding coping, generally psychologists and counsellors reported the highest utilisation of coping strategies, while doctors and nurses reported the lowest utilisation. However, the opposite pattern was found for peer social support; nurses reported significantly higher levels of peer support than psychologists. Implications of these results are discussed.

*Keywords: Vicarious posttraumatic growth, secondary traumatic stress, coping, social support, self-care, humour, health professionals, trauma*

### Overview

Health professionals are vicariously exposed to a range of traumatic events including physical injury, rape and sexual abuse, motor vehicle accidents, and disasters (Crabbe, Bowley, Boffard, Alexander, & Klein, 2004). There is empirical evidence to suggest that such *vicarious traumatic exposure*, characterised as exposure to details of a traumatic event through contact with a direct trauma survivor (e.g., Brockhouse, Msetfi, Cohen, & Joseph, 2011), can have both negative and positive psychological consequences (e.g., Arnold, Calhoun, Tedeschi, & Cann, 2005). Negative psychological consequences have been characterised as *secondary traumatic stress* (STS), symptoms consistent with Posttraumatic Stress Disorder among direct trauma survivors - the only difference being that STS develops from vicarious rather than direct traumatic exposure (Canfield, 2005). Positive psychological consequences consist of *vicarious posttraumatic growth* (VPTG), positive changes to self-perception, interpersonal relationships, and philosophy of life that result from vicarious traumatic exposure (Arnold et al., 2005; Tedeschi & Calhoun, 1996). Previous research has documented these positive and negative changes to simultaneously exist among a range of health professionals, such as therapists (e.g., Arnold et al., 2005), social workers (e.g., Ben-Porat & Itzhaky, 2009), and nurses (e.g., Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008a); however, little research has systematically investigated whether certain health specialities have a greater vulnerability to STS, or are more likely to develop VPTG compared with other health professionals. In other words, there is a lack of research that has investigated whether health specialists, defined as specific groups or types of health care professionals, differ from one another in their reactions to vicarious traumatic exposure. Differences in the coping strategies utilised, workplace culture, the stage at which professionals come into contact with direct trauma survivors, the amount of time they spend with trauma survivors, and the nature of the treatment and care that specialists are able to offer may all contribute to differences

between types of health professionals. The current study aims to investigate whether medical doctors, nurses, social workers, psychologists, and counsellors differ in the extent to which they experience STS and VPTG, and whether they differ in their utilisation of coping strategies. Results may indicate ways that vulnerable specialities can be better supported in the workplace and how VPTG can be fostered in specialities that generally do not experience it to a high degree.

### **Secondary traumatic stress**

STS can have devastating effects on the lives of health professionals (e.g., Naturale, 2007). Therefore, it is important to be aware of specialties that are particularly vulnerable to developing STS. Researchers have often included multiple types of health professionals in their investigations of STS, but frequently have failed to conduct comparisons between specialties (e.g., Kjellenberg, Nilsson, Daukantaite, & Cardena, 2014). Of the few that have conducted inter-speciality comparisons, results are inconsistent. One study reported that nurses experienced significantly higher levels of STS than doctors (Taubman-Ben-Ari & Weintraub, 2008), while another reported no significant differences between doctors, nurses, or therapists (Shiri et al., 2008a). Furthermore, comparisons between studies are limited due to the varied assessment methods utilised by previous research. The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004), Professional Quality of Life Scale (ProQOL; Stamm, 2005), the Impact of Events Scale (IES; Weiss & Marmar, 1997) and the Revised PTSD Inventory (Solomon, Benbenishty, Neria, Abramowitz, Ginzburg & Ohry, 1993) are just a few of the assessment scales that have been used to assess STS. Meadors, Lamson, Swanson, White and Sira (2009-2010) included three of these scales, the STSS, IES and ProQOL, to assess STS among four groups of professionals; doctors, nurses, chaplains, and child life specialists. While tests of statistical difference were not provided, differences in the patterns of results suggest that findings are impacted by the measurement scales utilised.

For example, of the four groups, nurses scored the highest on the STSS and the IES, but the lowest on the compassion fatigue subscale of the ProQOL. This makes it difficult to identify those types of health professionals that are particularly vulnerable to STS. Research that compares a range of health professionals using the same assessment measure is needed to identify those health professionals with the greatest risk of developing STS.

### **Vicarious Posttraumatic growth**

Although VPTG is a relatively new construct, there is already research documenting this phenomenon among a wide range of health professionals (e.g., Arnold et al., 2005; Ben-Porat & Itzhaky, 2009). However, only two studies have investigated inter-speciality differences (Shiri et al., 2008a; Taubman-Ben-Ari & Weintroub, 2011). Shiri et al. (2008a) reported that nurses and psychotherapists experienced significantly higher levels of VPTG than doctors. Taubman-Ben-Ari and Weintroub (2011) also reported nurses to have significantly greater VPTG than doctors. A comparison between studies investigating VPTG among health professionals is aided by the majority of previous research utilising the Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) to measure VPTG. Overall, it appears that therapists (Linley & Joseph, 2007) and nurses (Shiri et al., 2008a; Taubman-Ben-Ari & Weintroub, 2008) experience the highest levels of VPTG, followed by social workers (Gibbons, Murphy, & Joseph, 2011), counsellors (O'Sullivan & Whelan, 2011), and finally doctors (Shiri et al., 2008a; Taku, 2014). However, research in this area is limited due to poorly defined sample populations. For example, the term "therapist" has been used to describe social workers (e.g., Ben-Porat & Itzhaky, 2009), psychologists (e.g., Linley & Joseph, 2007), a mix of mental health professionals (e.g., Samios, Rodzik, & Abel, 2012), and undefined groups of health professionals (e.g., Brockhouse et al., 2011). Research that investigates differences in VPTG among a range of clearly defined groups of health professionals would aid in the identification of those health professionals most likely to gain

benefits from their work with trauma survivors, and may indicate ways that the development of VPTG can be supported among other specialities.

### **Coping strategies**

It has been suggested that the utilisation of coping strategies is an important factor in the development of STS (e.g., Naturale, 2007) and VPTG (Shiri et al., 2008a). Therefore, differences in the way health professionals utilise coping strategies should be taken into consideration when investigating differences in STS and VPTG. Among psychologists and counsellors, reported coping strategies include self-education regarding STS symptoms, maintaining professional distance with clients, social support in the form of engaging in supervision and debriefing, exercise, taking regular breaks from work, and engaging in pleasurable activities (Hunter & Schofield, 2006; Lonergan, O'Halloran & Crane, 2004). Among social workers common coping strategies involved activism, feminism, spirituality, positive peer interaction, humour, and revenge fantasies (Clemans, 2004). Markwell and Wainer (2009) reported that the most effective strategies at managing stress among junior doctors included spending time with friends and family, exercise, taking time off, and discussing concerns with a mentor. Finally, nurses reported coping strategies included acceptance, wishful thinking, avoidance, spirituality and positive appraisal (Kalichman, Gueritault-Chalvin, & Demi, 2000). Qualitative literature in this area has greatly contributed to our understanding of the use of coping strategies among health professionals, but a lack of quantitative research makes direct comparisons between health professional groups difficult. To the authors' knowledge, no research has compared a range of health professionals on their use of coping strategies in a systematic manner that allows for direct comparisons; such research would be fruitful.

### **The current study**

The aim of the current study is to compare STS, VPTG, and the use of coping strategies among a range of health professionals. Specifically, the coping strategies of

interest are social support, self-care, and humour; these coping strategies were chosen because they appear to be common adaptive coping strategies reported among a wide range of health professionals. Because research comparing health professionals is limited and has yielded inconsistent results, this study is framed as an exploratory investigation of inter-speciality differences, and therefore is not driven by specific hypotheses.

## Method

### Participants

A sample of 365 health professionals participated; 103 social workers, 76 nurses, 72 counsellors, 70 psychologists, and 44 medical doctors. The majority of participants were female (82%) and currently living in New Zealand (97%). Participants most commonly identified their ethnicity as New Zealand European/ Pākehā (72%), Other European (12%), New Zealand Māori (4%), Australian (2%), or a combination of response options (2%). Participants had a mean age of 48.20 years; counsellors had the highest mean age (52.76 years), while psychologists had the lowest (44.50). On average participants had worked in their field for an average of 17.20 years. Doctors and nurses had spent the longest working in their field, an average of 19.34 and 22.68 years, respectively; psychologists had spent the least amount of time in their field, and average of 13.05 years. On average, participants spent 13.48 hours of their typical working week with trauma clients; this was highest for social workers, an average of 17.79 hours, and lowest for doctors and psychologists, an average of 8.11 and 8.47 hours, respectively.

### Measures

**Secondary traumatic stress.** The Secondary Traumatic Stress Scale (STSS; Bride et al., 2004) was used to measure STS. This 17-item scale, designed for use with professionals working with trauma survivors, was constructed to align with the revised fourth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) diagnostic criteria of Posttraumatic Stress Disorder. Therefore it measures

symptoms of intrusion, avoidance, and hyperarousal. Previous research has shown the STSS to be a psychometrically sound measure (Bride et al., 2004). Cronbach's alpha in the present study =.93.

**Vicarious posttraumatic growth.** The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to measure VPTG in the current study. This 21-item scale measures five distinct forms of growth: relating to others, identifying new possibilities, personal strength, spiritual change, and appreciation of life. Participants rate the extent to which they have experienced the growth described in each item on a 6-point Likert scale. The PTGI has good psychometric properties (Tedeschi & Calhoun, 1996), and has been used numerous times in previous research to measure VPTG (e.g., Linley & Joseph, 2007). Consistent with previous research (e.g., Shiri Wexler, Alkalay, Meiner & Kreitler, 2008b), participants were asked to focus on their work with trauma victims before filling out this measure. Wording of response options was altered from "I have/have not experienced this change as a result of my crisis" to "I have/have not experienced this change as a result of *my work*". Cronbach's alpha in the present study =.95.

**Social support.** The Social Support Scale (SSS; Caplan, Cobb, French, Van Harrison, & Pinneau, 1975) assesses perceived level of emotional and instrumental support from three sources: supervisors, co-workers (peers) and family/friends (thus creating three subscales). For each item, participants are required to indicate how much support they get from each source using a 5-point Likert scale ranging from 1 ("Very little") to 5 ("A great deal"). In addition to the four original items, an additional item was included that asks participants to indicate how much each of the support sources helps them to feel prepared for their work. The original response format was applied to this additional question. For the remainder of this article the term "Total Support" will be used to refer to participant's total scores on the

scale, and the terms “Supervisory Support”, “Friend/family Support” and “Peer Support” will be used to refer to the three subscales. Cronbach’s alpha in the present study =.87.

**Self-care.** The Self-Care Utilisation Questionnaire (SCUQ; Goncher, Sherman, Haskins, & Barnett, 2013) is a 30-item scale that assesses the extent to which participants utilise a range of self-care activities, using a 5-point Likert scale. Attending to spiritual and religious needs, taking the time to engage in physical activity, and talking to others when stressed are examples of the self-care strategies included in this measure. The SCUQ was originally designed for use with students pursuing the degree of clinical psychology. For the current study this measure was adapted for use with health professionals; where items referred to the graduate training program or “clinical work”, items were changed to refer to “work” generally. Where items referred to “psychology” as an interest area, items were altered to refer to “healthcare”. Cronbach’s alpha in the present study =.91.

**Humour.** The Self-Enhancing Humor subscale of the Humor Styles Questionnaire (HSQ; Martin, Puhlik-Doris, Larsen, Gray, & Weir, 2003) is an 8-item measure that assesses the use of humour as a coping strategy and the extent that participants can maintain a positive and humorous outlook on life despite adversity. Participants rate the extent to which they agree with each item using a 7-point Likert scale. Cronbach’s alpha in the present study=.82.

**Vicarious traumatic exposure.** Vicarious traumatic exposure was measured in the current study by asking participants to indicate the average number of hours they spend with trauma clients per week.

**Years of experience.** Participants were asked to indicate how many years they have been working in their current field.

## **Procedure**

Ethical approval for the current study was granted by the Massey University Ethics Committee. Participants were recruited through their professional bodies, workplaces, online directories, health care organisations, or through social media. Questionnaires were

administered via an online survey that took approximately 15-20 minutes to complete. Participants were provided with a Participant Information Sheet prior to filling out the survey and were provided with the option to request a summary of results upon completion. In addition, participants were entered into a prize draw to win one of three \$50 book vouchers as a token of the researchers' appreciation of their participation.

### **Statistical analysis**

SPSS version 21 was used to conduct all statistical analyses. A preliminary t-test was conducted to assess for gender differences. To assess whether participants differed by profession on the three coping strategies, STS, and VPTG, a MANOVA (Multiple Analysis of Variance) was conducted. Assumptions of MANOVA were assessed. Five outliers were identified using Z-scores and were altered to one score above the highest non-outlier data point (Tabachnick & Fidell, 2013). Violations to assumptions of multicollinearity were not indicated. There was evidence of deviation from normality; however, MANOVA is robust to violations of normality when an adequate sample size is utilised (minimum 20 per group, Mardia, as cited by Tabachnick & Fidell, 2013). Similarly, visual analysis of matrix scatterplots suggested evidence of possible curvilinear relationships, which can reduce the power of MANOVA; however, results presented here are likely to be robust because of the large sample size. The Games-Howell post hoc analysis was used to compensate for unequal sample sizes and several demonstrations of unequal variance.

## **Results**

### **Overview**

Table 6.1 displays participants' mean scores and standard deviations for key variables included in the current study. Social workers were observed to report the highest scores on the PTGI and the STSS, while psychologists scored the lowest on both these scales.

Counsellors reported the highest Total Support and SCUQ scores; doctors scored the lowest.

Nurses reported the highest HSQ scores, while doctors once again scored the lowest. Nurses

Table 5.1.

*Means and standard deviations (in parenthesis) for each individual profession for key variables.*

	Doctors	Nurses	Psychologists	Social workers	Counsellors
Years of Experience	19.34 (10.15)	22.68 (12.53)	13.05 (10.50)	16.00 (9.95)	15.66 (8.87)
Vicarious Traumatic Exposure	8.11 (10.10)	16.66 (14.31)	8.47 (6.43)	17.79 (12.73)	12.11 (8.15)
STSS	30.02 (9.68)	30.64 (10.08)	27.60 (7.85)	32.48 (12.00)	28.60 (8.92)
PTGI	73.17 (21.18)	81.53 (21.22)	72.04 (22.69)	84.60 (17.38)	78.51 (23.90)
Total Support	47.38 (11.10)	51.67 (9.86)	53.02 (10.20)	51.44 (10.91)	54.50 (9.60)
<i>Supervisory Support</i>	13.02 (5.96)	15.76 (5.07)	18.75 (4.23)	17.64 (5.24)	20.16 (4.07)
<i>Peer Support</i>	16.07 (4.34)	18.11 (4.14)	15.78 (4.90)	17.19 (4.56)	16.32 (5.44)
<i>Friends/ Family Support</i>	18.30 (5.18)	17.80 (4.80)	18.49 (4.73)	16.61 (5.27)	18.07 (5.28)
SCUQ	101.42 (13.21)	105.21 (17.11)	112.19 (12.92)	110.72 (13.09)	116.75 (11.66)
HSQ	39.07 (7.33)	42.05 (7.43)	39.19 (7.42)	40.66 (7.69)	39.75 (7.23)

*Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. SCUQ= Self-Care Utilisation Questionnaire. HSQ= Humor Styles Questionnaire.

followed by doctors reported the most years of experience, while psychologists reported the least. Finally, social workers and counsellors reported the highest level of vicarious traumatic exposure in the workplace, while psychologists and doctors reported the least.

### **Gender effects**

An independent t-test was conducted with the overall sample to assess whether males and females differed significantly on any of the key variables included in the current study; there were no significant results.

### **Inter-speciality differences**

A one-way MANOVA revealed a significant multivariate effect for occupation, Wilks  $\lambda = .50$ ,  $F(44.00, 1340.97) = 6.12$ ,  $p < .001$ . Given the overall significant effect, univariate main effects were assessed. Significant main effects were found for STSS scores,  $F(4, 360) = 2.99$ ,  $p = .02$ , and PTGI scores,  $F(4, 360) = 4.85$ ,  $p = .001$ . Regarding social support, a significant main effect was found for Total Support,  $F(4, 360) = 3.51$ ,  $p < .01$ , Supervisory Support,  $F(4, 360) = 17.96$ ,  $p < .001$ , and Peer Support,  $F(4, 360) = 2.92$ ,  $p = .02$ . Significant main effects were also found for participants' SCUQ scores,  $F(4, 360) = 11.46$ ,  $p < .001$ , Years of Experience,  $F(4, 360) = 9.13$ ,  $p < .001$ , and Vicarious Traumatic Exposure,  $F(4, 360) = 11.98$ ,  $p < .001$ . No significant main effects were found for HSQ scores or Family/Friends Support.

Games-Howell post hoc analyses were conducted to assess where significant differences occurred (i.e., between which professional groups). Social workers were found to have significantly higher STSS scores than psychologists ( $p = .01$ ), and significantly higher PTGI scores than psychologists ( $p = .001$ ) and doctors ( $p = .02$ ). Regarding social support, significantly higher Total Support scores were reported by counsellors compared to doctors ( $p = .01$ ). Counsellors ( $p < .001$ ), psychologists ( $p < .001$ ) and social workers ( $p < .001$ ) reported significantly greater Supervisory Support than doctors; psychologists ( $p = .001$ ) and counsellors ( $p < .001$ ) reported significantly greater Supervisory Support than nurses; and

counsellors reported significantly higher Supervisory Support than social workers ( $p < .01$ ). Regarding Peer support, significantly higher scores were obtained by nurses compared to psychologists ( $p = .02$ ). Concerning participants SCUQ scores, counsellors ( $p < .001$ ), psychologists ( $p < .001$ ) and social workers ( $p < .001$ ) scored significantly higher than doctors; counsellors ( $p = .001$ ) and psychologists scored significantly higher than nurses ( $p < .001$ ); and counsellors scored significantly higher than social workers ( $p < .01$ ). Nurses were found to have been working in their field for a significantly longer amount of time than psychologists ( $p < .001$ ), social workers ( $p < .01$ ), and counsellors ( $p = .001$ ); and doctors had worked in their field for significantly more time than psychologists ( $p = .02$ ). Social workers were exposed to significantly higher levels of vicarious traumatic exposure than doctors ( $p < .001$ ), psychologists ( $p < .001$ ), and counsellors ( $p < .01$ ); nurses were exposed to significantly higher levels of vicarious traumatic exposure than doctors ( $p < .01$ ) and psychologists ( $p < .001$ ); and counsellors were exposed to significantly higher levels of vicarious traumatic exposure than psychologists ( $p = .03$ ).

### **Discussion**

The current study aimed to explore differences among health professionals' reactions to, and ability to cope with, vicarious traumatic exposure. Results indicated that social workers experienced significantly greater levels of STS than psychologists, and significantly higher levels of VPTG than psychologists and doctors. These results likely reflect the high level of vicarious traumatic exposure reported by social workers, significantly higher than that reported by psychologists and doctors. Because social workers are often involved in the immediate disaster and trauma response effort (e.g., Naturale, 2007), they may be more likely to witness the despair and devastation that trauma survivors experience immediately following the traumatic event (Joseph, 2011). This may increase their risk of developing STS, but may also promote their likelihood of developing VPTG. It is also possible that social

workers experience a higher level of identification with their clients than other health professionals, which may enable them to metaphorically apply the traumatic event to their own lives, increasing their levels of STS and VPTG. Results reported here contradict comparisons of previous studies where psychologists (e.g., Linley & Joseph, 2007) gained higher scores on the PTGI than social workers (e.g., Gibbons et al., 2011); however, they are consistent with comparisons where social workers (Gibbons et al., 2011) obtained higher scores on the PTGI than doctors (Taku, 2014). Contributing factors to these inter-speciality differences may include time spent with trauma clients, strength of emotional connection or identification with clients, or the level of resilience found in each profession. Overall, these results suggest that it is important to provide social workers with resources to support and protect them from STS, while maintaining opportunities for VPTG to occur.

Regarding social support, findings suggest that counsellors experience higher levels of perceived social support than doctors. When the three types of social support were taken into consideration, it was noted that counsellors and doctors obtained similar scores on the subscales measuring peer support and friends/family support; the significant difference in overall perceived social support appeared to be driven by a perceived difference in supervisory support. This suggests that supervisory support is an important component in overall perceived social support, and steps should be taken to ensure that supportive supervision is available to all types of health professionals.

In the present sample counsellors, psychologists, and social workers experienced greater supervisory support than doctors; psychologists and counsellors experienced greater supervisory support than nurses; and counsellors experienced greater supervisory support than social workers. Psychologists, counsellors, and social workers are required to engage in regular supervision by their respective practicing boards, and they may lose their practicing licence if these guidelines are not adhered to. In contrast, nurses and doctors do not have this

same expectation, and thus may not engage in regular supervision. Therefore, results likely reflect the *availability* of supervision, rather than suggesting that nurses and doctors would not find supervision a helpful coping strategy. Providing doctors and nurses with some form of regular supervision may prove beneficial to their workplace functioning.

Significantly higher levels of perceived peer support were reported by nurses compared with psychologists. Nurses often work in settings where they interact with a large number of their peers and share client responsibilities among a team. In contrast, psychologists often work in settings with considerably fewer peers, or even alone if they work in private practice. Even when psychologists work alongside peers, they do not share responsibility for clients and therefore may have fewer opportunities to engage in peer support. In addition, issues of confidentiality may prevent psychologists from sharing with peers as much as they would like. Holding daily meetings in settings such as District Health Boards or engaging in informal peer support groups may be several ways in which psychologists and their employers could reduce the risk of peer isolation while being mindful of confidentiality.

Finally, results suggested that counsellors, psychologists, and social workers engaged in a significantly greater level of self-care compared to doctors; counsellors and psychologists reported significantly greater self-care than nurses; and counsellors reported significantly greater self-care than social workers. This may reflect a greater awareness on the part of psychologists, counsellors, and to a lesser extent, social workers regarding the effectiveness of self-care as a coping strategy. These three professions are likely to have come across the usefulness of self-care in their training, and are likely to work toward engaging clients in self-care strategies frequently. This may have contributed to a personal awareness of the effectiveness of self-care and an enhanced implementation of personal self-care strategies. Self-care education and facilitation in the workplace, such as the promotion of healthy

caseloads and socialising with peers outside of the workplace, may facilitate self-care utilisation among doctors and nurses.

There are several limitations to consider in the current study. First, doctors, nurses, psychologists, counsellors, and social workers were included in the current study because they were deemed to represent health professionals who have frequent contact with trauma clients; however, they by no means represent an exhaustive list of the health professionals that work with trauma survivors. Results presented here should not be considered generalisable to professions not included in the current study. In addition, care should be taken when generalising to samples outside the New Zealand population and it should be noted that the current sample self-selected, which may have further implications for generalisability. Future research that includes a greater range of health professionals and compares health professionals cross-culturally would be beneficial. Second, while the current sample size was large enough to satisfy statistical requirements, it is possible that more subtle differences between health professionals went unnoticed due to insufficient power. The presented results should be replicated with a larger sample size to investigate this possibility. Third, the current study investigated whether differences would occur among health professionals' reactions to, and ability to cope with, vicarious traumatic exposure, but addressing *why* these differences occur was beyond the scope of the current study (although potential explanations were explored). Future research could investigate whether factors such as emotional connection with clients or treating physical versus mental injuries, for example, can account for the inter-speciality differences reported here. Finally, it should be noted that the current study was entirely cross-sectional in design, and therefore no inferences regarding causality can be made.

### **Summary**

Overall, the present findings suggested that social workers are most likely to experience both STS and VPTG, while psychologists were the least likely to develop either psychological outcome of vicarious traumatic exposure. Regarding coping, generally psychologists and counsellors reported the greatest utilisation of coping strategies, social workers displayed a moderate amount, and nurses and doctors displayed the least. However, the opposite pattern was true for peer support; nurses obtained significantly higher scores than psychologists. All professions utilised a comparable level of humour. Overall, these results suggest that those health professionals who are at the greatest risk of developing STS are also the most likely to benefit from vicarious traumatic exposure, and that these professionals tend to engage in a moderate level of coping. Providing supportive supervision, peer support, and encouraging self-care in the workplace may provide further protection against STS and facilitate VPTG for all health specialities.



MASSEY UNIVERSITY  
GRADUATE RESEARCH SCHOOL

STATEMENT OF CONTRIBUTION  
TO DOCTORAL THESIS CONTAINING PUBLICATIONS

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

**Name of Candidate:** Shekinah Manning-Jones

**Name/Title of Principal Supervisor:** Ian de Terte

**Name of Published Research Output and full reference:**

Manning-Jones, S., de Terte, I., & Stephens, C (2015). Health professionals' reactions to vicarious traumatic exposure; Are there differences across specialities? Manuscript submitted for publication.

**In which Chapter is the Published Work:** Chapter 5

Please indicate either:

- The percentage of the Published Work that was contributed by the candidate:  
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**Chapter Six:****The relationship between vicarious posttraumatic growth and secondary traumatic stress among New Zealand health professionals.**

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This chapter, presented in the form of a manuscript to be submitted for publication, presents an in-depth investigation of the relationship between VPTG and STS. By now, readers have an understanding of STS and VPTG, and have gained some knowledge about factors that influence the likelihood of experiencing each of these psychological outcomes. It is now time to explore the relationship between these two outcome variable themselves. This manuscript also builds on the preceding manuscript by exploring the relationship between STS and VPTG within each individual profession, allowing differences and similarities to be investigated.

### **Abstract**

*Vicarious posttraumatic growth* (VPTG) refers to positive psychological growth experienced as a result of vicarious traumatic exposure. Limited research has investigated the relationship between VPTG and symptoms of *secondary traumatic stress* (STS), and results are mixed. Various relationships have been proposed in the literature, including a linear association, no association, and a curvilinear association. The current study assessed the relationship between STS and VPTG among an overall sample of 365 nurses, psychologists, counsellors, social workers, and medical doctors, and within each of these individual professions. Results suggest a curvilinear relationship exists between STS and VPTG. However, this result appeared to largely be governed by the curvilinear relationship found among psychologists; STS was not found to predict VPTG among any other profession. Implications of these results are explored.

**Keywords:** *Secondary traumatic stress, vicarious posttraumatic growth, health professionals, curvilinear*

### Overview

As much as 80% of the general population will experience a traumatic event in their lifetime (de Vries & Olf, 2009). The psychological impact of such events can be complex and varied, and a large body of literature documents both negative (*posttraumatic stress*) and positive (*posttraumatic growth*) effects among survivors. Often overlooked is the impact traumatic events have on those supporting trauma survivors; one group being health professionals. *Vicarious traumatic exposure* is a term used in the literature to refer to indirect traumatic exposure, for example exposure to direct trauma survivors or the aversive details of a traumatic event (e.g., Brockhouse, Msetfi, Cohen, & Joseph, 2011). Similar to direct trauma survivors, both positive and negative psychological consequences have been reported as a result of vicarious traumatic exposure (Steed & Downing, 1998). This article explores how two psychological outcomes of vicarious traumatic exposure, *secondary traumatic stress* and *vicarious posttraumatic growth* relate to one another. First, these two concepts will be explained in greater depth, and then research investigating the relationship between posttraumatic stress and posttraumatic growth among direct trauma survivors and following vicarious traumatic exposure will be reviewed.

#### **Posttraumatic stress / secondary traumatic stress**

The term ‘posttraumatic stress’ can be used to represent symptoms of Posttraumatic Stress Disorder (PTSD) while acknowledging that not all those individuals who experience symptoms will meet full diagnostic criteria. Therefore, posttraumatic stress can be characterised as symptoms of intrusion, avoidance, hyperarousal, and negative alterations to cognition and mood (American Psychiatric Association, 2013). *Secondary traumatic stress* (STS) occurs when these symptoms arise as a result of being exposed to shocking emotional material regarding a traumatic event experienced by another (Canfield, 2005; O’Halloran & Linton, 2000). Health professionals are one population that experience such vicarious traumatic exposure. Health professionals have reported experiencing insomnia, nightmares,

irritability, hypervigilance, intrusive thoughts, and even reliving the events that their clients have described (Bride, 2007; Steed & Downing, 1998). Negative emotions including horror, anger, pain, and frustration have also been reported, along with negative alterations to the way health professionals view themselves and the world (Steed & Downing, 1998). In one study (Century, Leavey, & Payne, 2007), counsellors that worked with refugees described the experience of hearing their clients' recount the traumatic events they had experienced as "shocking and harrowing" (p.32) and "agonising" (p.34), and they reported feeling helpless and powerless during their sessions with their clients. Figley (1995) reported that STS symptoms often emerge suddenly and feel disconnected from real events, which can trigger a sense of isolation and confusion. STS has a widespread effect on the daily lives of health professionals, and it appears that all types of health professionals are vulnerable (for reviews with various populations see Arvay, 2001; Beck, 2011; Canfield, 2005).

### **Posttraumatic growth**

*Posttraumatic growth* is characterised as positive change to the self, interpersonal relationships, and life philosophy that are experienced as a result of one's internal struggle with adversity (Linley & Joseph, 2004; Tedeschi & Calhoun, 1996). *Vicarious* posttraumatic growth (VPTG) occurs when these positive changes occur, not as a result of direct traumatic exposure, but through being exposed to a traumatic event via another source (Arnold, Calhoun, Tedeschi, & Cann, 2005). Arnold et al. (2005) reported that all psychotherapists involved in their study were able to identify positive consequences of their work, including witnessing clients' growth, greater personal strength, positive character changes, spiritual growth, and enhanced appreciation of their own good fortune. These changes were noted to be consistent with posttraumatic growth experienced by direct trauma survivors, validating the claim that participants were exhibiting a vicarious form of posttraumatic growth. Recent research continues to provide support for this claim through reports of VPTG that are

consistent with Tedeschi and Calhoun's (1996) original conceptualisation of posttraumatic growth (e.g., Barrington & Shakespeare-Finch, 2013). VPTG is now a well-established phenomenon that has been reported among a range of health professionals, including therapists, social workers, counsellors, and doctors (for a review see Manning-Jones, de Terte, & Stephens, 2014).

### **The relationship between STS and VPTG**

Research investigating the relationship between posttraumatic stress and posttraumatic growth has yielded mixed results, both among direct trauma survivors and among health professionals who have experienced vicarious traumatic exposure. Four relationships have been proposed in the literature; no systematic association, a linear positive association, a linear negative association, and a curvilinear association. Research documenting each of these associations will be briefly reviewed here with consideration to both direct trauma survivors and health professionals vicariously exposed to trauma.

Several studies have suggested that posttraumatic stress and posttraumatic growth are distinct and unrelated constructs. Among direct trauma survivors, Salsman, Segerstrom, Brechting, Carlson, and Andrykowski (2009) investigated the psychological effects of receiving a cancer diagnosis over a three month period, and reported that, while posttraumatic stress and posttraumatic growth were both present in their sample, they were not associated with one another. This pattern of results was also reported by Maercker and Herrle (2003), who studied posttraumatic stress and posttraumatic growth in survivors of the 1945 Dresden bombing 50 years after the event. Among health professionals, studies have reported that STS and VPTG were found to be uncorrelated among social workers (Gibbons, Murphy, & Joseph, 2011) and a combined sample of nurses and physicians (Taubman-Ben-Ari & Weintraub, 2008). Such results suggest that posttraumatic stress and posttraumatic growth, either direct or vicarious, develop independently of one another; if a health professional

develops STS, this would neither increase nor decrease their likelihood of developing VPTG.

It appears that posttraumatic growth is an outcome in its own right, and does not simply indicate an absence of posttraumatic stress.

There is also some evidence to suggest that a negative relationship exists between posttraumatic stress and posttraumatic growth; that is, as one increases the other decreases. Specifically, there is research to suggest that posttraumatic growth predicts lower levels of future posttraumatic distress. Frazier, Conlon, and Glaser (2001) reported that consistent reports of posttraumatic growth over a one year period among sexual assault survivors predicted a reduction in later posttraumatic stress. Similar results have been reported among financially disadvantaged youth (Ickovics, Meade, Kershaw, Lewis, & Ethier, 2006), and participants who had experienced a tornado, mass killing, or plane crash (McMillian, Smith & Fisher, 1997). This research may suggest that posttraumatic growth is, as well as its own outcome, a protective factor against posttraumatic stress. Results appear to suggest that as a trauma survivor's levels of posttraumatic growth increase, posttraumatic stress diminishes, rather than the two occurring concurrently. Interestingly, there is no research to date to support this relationship among populations who have vicariously experienced a traumatic event.

A third well documented body of literature suggests that posttraumatic stress and posttraumatic growth are positively associated. Helgeson, Reynolds, and Tomich (2006) conducted a meta-analysis of 87 cross-sectional studies that examined the association between posttraumatic stress and posttraumatic growth among direct trauma survivors and reported that, overall, posttraumatic growth (or *perceived benefits* as it is termed in this article) was positively associated with symptoms of posttraumatic stress. Significant positive correlations between these two constructs have also been found among motor vehicle accident survivors (Nishi, Matsuoka & Kim, 2010), college students who had experienced

aversive events (Park, Cohen & Murch, 1996), and war veterans (Fontana & Rosenheck, 1998). Regarding vicarious traumatic exposure, a positive linear relationship between STS and VPTG has been reported among therapists (Samios, Rodzik, & Abel, 2012), counsellors (O'Sullivan & Whelan, 2011), and a group of health professionals working with war and torture survivors (Kjellenberg, Nilsson, Daukantaité, & Cardeña, 2014). These findings would suggest that posttraumatic stress and posttraumatic growth, direct and vicarious, are entwined processes; the more posttraumatic stress an individual has the more likely they are to also experience posttraumatic growth. This positive association may be related to the fact that, in order for posttraumatic growth to occur, an individual must experience devastation and distress following a trauma, and must sufficiently engage in intrusive and ruminative cognitive processing, which are also associated with posttraumatic stress (Davis & MacDonald, 2004; Tedeschi & Calhoun, 2004).

Finally, several studies have suggested that a more complex curvilinear model best explains the relationship between posttraumatic stress and posttraumatic growth. Butler et al. (2005) reported an inverted "U" shaped relationship, with moderate levels of posttraumatic stress being associated with the highest levels of posttraumatic growth. They argued that this indicates that the trauma experienced must be challenging enough to impel posttraumatic growth, however too much posttraumatic stress can inhibit growth-promoting processes. This inverted "U" shaped relationship has also been reported among Sri Lankan university students (McCaslin et al., 2009). A curvilinear association has also been reported by Kleim and Ehlers (2009) and Lechner, Carver, Antoni, Weaver, and Phillips (2006), although in these cases posttraumatic growth was used as the predictor variable, and posttraumatic stress as the outcome variable. Both studies reported that those participants with the lowest and highest levels of posttraumatic growth had less posttraumatic stress than those participants with moderate levels of posttraumatic growth. It may be that participants with very low levels

of posttraumatic growth are relatively unaffected by the trauma and therefore also experience little posttraumatic distress (Kleim & Ehlers, 2009), while participants with very high levels of posttraumatic growth have additional benefits of high levels of optimism and adaptive coping to protect against posttraumatic stress (Lechner et al., 2006). A curvilinear relationship between STS and VPTG has also been reported following vicarious traumatic exposure. Shiri, Wexler, Alkalay, Meiner, and Kreitler, (2008a) investigated the relationship between STS and VPTG among a sample of doctors, therapists, and nurses and reported that initially increases in STS corresponded linearly with increases in VPTG, but at a point VPTG reached a plateau and no longer continued to increase despite further STS intensification. This is slightly different than the inverted 'U' shaped relationship reported by Butler et al. (2005), nevertheless it supports a curvilinear model among vicariously exposed populations. It is possible that a curvilinear model offers an explanation for discriminant results reported among studies investigating the relationship between posttraumatic distress and posttraumatic growth;

Perhaps those studies that have failed to test for a curvilinear relationship and report finding either a linear association or no association between STS and VPTG are capturing differing aspects of the curvilinear model. However, it should be noted that a later study by the same researchers involving hospital rehabilitation workers and body handlers failed to replicate these curvilinear results (Shiri, Wexler, Alkalay, Meiner, & Kreitler, 2008b).

Therefore, further research regarding the possibility of a curvilinear STS-VPTG relationship is needed.

### **The current study**

The presented literature clearly outlines the lack of consensus among studies investigating the relationship between posttraumatic growth and posttraumatic stress. Few studies have considered this relationship among populations vicariously exposed to traumatic

events, and, as far as the author is aware, only two such studies have considered a curvilinear model. The current study aims to investigate the nature of the relationship between STS and VPTG, with consideration given to all relationships proposed in previous literature. It is hoped that the results of the current study will provide a step towards clarifying the discriminant results in this field. The relationship between STS and VPTG will be explored in an overall sample of health professionals, as well as among distinct types of health professionals due to the possibility that the relationship differs among populations. Because of the discriminant results reported in this field, the current study is framed as an explorative study, rather than being governed by specific hypotheses.

## Method

### Participants

A sample of 365 health professionals participated; 103 social workers, 76 nurses, 72 counsellors, 70 psychologists, and 44 medical doctors. The majority of participants were female (82%) and currently living in New Zealand (97%). Participants most commonly identified as New Zealand European/ Pākehā (72%), Other European (12%), New Zealand Māori (4%), Australian (2%), or a combination of response options (2%). Participants had a mean age of 48.20 years and had worked in their field for an average of 17.20 years.

### Materials

**Vicarious posttraumatic growth.** The Posttraumatic Growth Inventory (PTGI; Tedeschi & Calhoun, 1996) was used to measure VPTG. This 21-item scale measures five distinct forms of psychological growth: relating to others, identifying new possibilities, personal strength, spiritual change, and appreciation of life. Participants rate the extent to which they have experienced the growth described in each item on a 6-point Likert scale. The PTGI has good psychometric properties (Tedeschi & Calhoun, 1996), and has been used numerous times to measure VPTG (e.g., Linley & Joseph, 2007). Consistent with previous research (e.g., Shiri et al., 2008b), participants were asked to focus on their work with trauma

victims before filling out this measure. Wording of response options was altered from “I have/have not experience this change as a result of my crisis” to “I have/have not experienced this change as a result of *my work*”. Cronbach’s alpha =.95.

**Secondary traumatic stress.** The Secondary Traumatic Stress Scale (STSS; Bride, Robinson, Yegidis, & Figley, 2004) was used to assess STS. This is a 17-item scale designed for use with professionals working with trauma survivors. It was constructed to align with the revised fourth edition of the *Diagnostic and Statistical Manual for Mental Disorders* (DSM-IV-TR; American Psychiatric Association, 2000) diagnostic criteria of PTSD, and therefore measures symptoms of intrusion, avoidance, and hyperarousal. Previous research has shown the STSS to be a psychometrically sound measure (Bride et al., 2004). Cronbach’s alpha =.93.

**Direct traumatic exposure.** The Traumatic Stress Schedule (TSS; Norris, 1990) was used to assess participants’ direct traumatic exposure. Participants indicated whether they had experienced the following traumatic events: robbery, assault, sexual assault, fire, natural disaster, death of a family member or friend, motor vehicle accident, military combat, or some other shocking or distressing event. Previous research has found the TSS to be psychometrically sound (Norris, 1992; Norris & Perilla, 1996).

**Vicarious traumatic exposure.** Vicarious traumatic exposure was measured in the current study by asking participants to indicate the average number of hours they spend with trauma clients per week.

**Years of experience.** Participants were asked to indicate how many years they have been working in their current field.

## **Procedure**

Ethical approval for this research was granted by the Massey University Ethics Committee. Participants were recruited through their professional bodies, workplaces, online directories, health care organisations, or through social media. Questionnaires were

administered via an online survey that took approximately 15-20 minutes to complete. Participants were provided with a Participant Information Sheet before completing the survey and were provided with an opportunity to receive summary of results. Participants were entered into a book voucher prize draw as a token of the researchers' appreciation.

### **Statistical analysis**

SPSS version 21 was used to conduct statistical analyses. Pearson's  $r$  correlation analyses were performed to assess univariate associations. A quadratic hierarchical multiple regression was performed to simultaneously assess whether the STS-VPTG relationship was consistent with a linear or curvilinear model (consistent with the method used by Shiri et al., 2008a). Regression assumptions of normality, linearity, homoscedasticity, and independence of errors were satisfied (Tabachnick & Fidell, 2013). To reduce the risk of multicollinearity, variables were centred before creating a quadratic term (Frazier, Tix, & Barron, 2004); no violations of multicollinearity were detected. A total of 17 outlier values were identified and reduced to one unit above the highest non-outlier value (Tabachnick & Fidell, 2013); there was no identifiable pattern in their occurrence. Years of experience, direct exposure to traumatic events, and vicarious traumatic exposure were considered as control variables, and were included in the regression analysis if they significantly correlated with either the independent or the dependent variables to account for any potential confounding effects. Age was also considered as a control variable, but was not included in analyses due to a high level of multicollinearity with years of experience. To assess whether profession impacted the relationship between STS and VPTG, regression analyses were repeated in the described way for each profession, provided that sample size requirements were satisfied (according to the requirements presented by Field (2013) for moderate effect sizes). This meant that a regression analysis could not be performed using data collected from doctors, as the sample size was not sufficient. The group of counsellors fell three participants short of the required

sample size, but the decision was made to proceed with the analysis as the sample size was so close to requirements; the shortfall should be considered in the interpretation of the analysis and is acknowledged as a limitation. A t-test was performed to assess for gender effects.

## Results

### Overview

Mean values and standard deviations for key variables among the overall sample and each individual profession are displayed in Table 6.1. Tables 6.2 to 6.4 display a correlation matrix between key variables in the current study for the overall sample and each individual profession.

The most commonly reported traumatic event among participants was the death of a close friend or family member (34.5%), followed by assault (30.1%), a natural or man-made disaster (21.4%), and robbery (16.7%). The least commonly reported were motor vehicle accidents (15.1%), unwanted sexual activity (12.6%), fire (7.9%), and military combat (2.5%). A large proportion of the sample (24.7%) also indicated that they had experienced some other kind of traumatic event that was not captured by the TSS.

Table 6.1.

*Mean values and standard deviations (in parenthesis) for the STSS, PTGI, TSS and Vicarious Traumatic Exposure among the overall sample and each individual profession.*

*NB: Some information presented in this table also appears in Chapters four and five of this thesis.*

	N	STSS	PTGI	TSS	Vicarious Traumatic Exposure	Years of Experience
<b>Overall sample</b>	365	30.10 (10.14)	78.97 (21.52)	10.67 (1.49)	13.48 (11.68)	17.16 (10.93)
<b>Nurses</b>	76	30.64 (10.08)	81.53 (21.22)	11.11 (1.53)	16.66 (14.31)	22.67 (12.53)
<b>Doctors</b>	44	30.02 (9.68)	73.17 (21.18)	10.03 (0.97)	8.11 (10.10)	19.34 (10.15)
<b>Psychologists</b>	70	27.60 (7.85)	72.04 (22.69)	10.49 (1.37)	8.47 (6.43)	13.05 (10.50)
<b>Counsellors</b>	72	28.60 (8.92)	78.51 (23.90)	10.59 (1.45)	12.11 (8.15)	15.65 (8.87)
<b>Social workers</b>	103	32.48 (12.00)	84.60 (17.38)	84.60 (17.38)	10.78 (1.64)	16.00 (9.95)

*Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. TSS= Traumatic Stress Schedule.

Table 6.2.

*Correlation matrix displaying the relationship between key variable in the current study for the overall sample and among nurses (results for nurses are presented in italics).*

	<b>Nurses (76)/Overall Sample (365)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1. STSS</b>	<b>1.00</b>	0.15**	0.07	0.08	0.01
<b>2. PTGI</b>	<i>0.05</i>	<b>1.00</b>	0.17**	0.17**	0.06
<b>3. TSS</b>	<i>-0.07</i>	<i>0.14</i>	<b>1.00</b>	0.11*	0.22**
<b>4. Vicarious Traumatic Exposure</b>	<i>0.05</i>	<i>0.20</i>	<i>0.13</i>	<b>1.00</b>	-0.02
<b>5. Years of Experience</b>	<i>-0.08</i>	<i>-0.06</i>	<i>0.23</i>	-0.13	<b>1.00</b>

\*  $p < 0.05$  \*\*  $p < 0.01$ . *Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. TSS= Traumatic Stress Schedule.

Table 6.3.

*Correlation matrix displaying the relationship between key variable in the current study for the doctors and psychologists (results for psychologists are presented in italics).*

	<b>Psychologists (70)/Doctors (44)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1. STSS</b>	<b>1.00</b>	-0.02	0.19	-0.20	-0.17
<b>2. PTGI</b>	<i>0.38**</i>	<b>1.00</b>	-0.30*	0.19	0.35*
<b>3. TSS</b>	<i>0.01</i>	<i>0.07</i>	<b>1.00</b>	-0.19	-0.19
<b>4. Vicarious Traumatic Exposure</b>	<i>-0.03</i>	<i>-0.02</i>	<i>0.04</i>	<b>1.00</b>	0.04
<b>5. Years of Experience</b>	<i>-0.12</i>	<i>-0.19</i>	<i>0.24*</i>	<i>0.29*</i>	<b>1.00</b>

\*  $p < 0.05$  \*\*  $p < 0.01$  . *Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. TSS= Traumatic Stress Schedule.

Table 6.4.

*Correlation matrix displaying the relationship between key variable in the current study for the counsellors and social workers (results for social workers are presented in italics).*

	<b>Social Worker (103)/ Counsellor (72)</b>				
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>
<b>1. STSS</b>	<b>1.00</b>	0.20	0.08	0.25*	0.04
<b>2. PTGI</b>	<i>0.02</i>	<b>1.00</b>	0.09	0.05	0.03
<b>3. TSS</b>	<i>0.10</i>	<i>0.39**</i>	<b>1.00</b>	0.08	0.32**
<b>4. Vicarious Traumatic Exposure</b>	<i>0.04</i>	<i>0.15</i>	<i>0.01</i>	<b>1.00</b>	0.11
<b>5. Years of Experience</b>	<i>0.10</i>	<i>0.23*</i>	<i>0.18</i>	<i>-0.26**</i>	<b>1.00</b>

\*  $p < 0.05$  \*\*  $p < 0.01$  . *Note.* STSS= Secondary Traumatic Stress Scale. PTGI= Posttraumatic Growth Inventory. TSS= Traumatic Stress Schedule.

### **Relationship between secondary traumatic stress and vicarious posttraumatic growth**

#### **Overall Sample**

A hierarchical quadratic regression analysis was performed to assess the relationship between STS and VPTG. This analysis assessed linear and curvilinear models simultaneously. As presented in Table 7.2, a significant correlation was found between Vicarious Traumatic Exposure and PTGI scores, and between TSS and PTGI scores; therefore Vicarious Traumatic Exposure and TSS scores were entered at the first step of the regression analysis as control variables. STSS scores were added at the second step and STSS scores squared at the third and final step. Results of this analysis are displayed in Table 7.5. Together all variables accounted for 8% of the variance in PTGI scores,  $F(1,360) = 4.44$ ,  $p < .05$ . STSS squared accounted for a (statistically significant) additional 1% of the variance over and above STSS scores, supporting a curvilinear model.

#### **By Profession**

Regression analyses were repeated for nurses (Table 7.6), psychologists (Table 7.7), social workers (Table 7.8), and counsellors (Table 7.9) to investigate whether STSS scores predicted PTGI scores (either in a linear or quadratic fashion) among each professional

group. The sample size was insufficient to conduct regression analysis among doctors.

Vicarious Traumatic Exposure, TSS scores, and Years of experience were included as control variables if they significantly correlated with STSS (the independent variable) or PTGI (the dependent variable) scores, to control for potential confounding effects.

Results revealed that STSS scores only predicted PTGI scores among psychologists. Furthermore, among psychologist a curvilinear model best accounted for the relationship between STSS scores and PTGI scores. Overall, variables were able to explain 23% of the variance in PTGI scores,  $F(1,67) = 7.22, p < .01$ . STSS squared was able to account for a (statistically significant) additional 8% of the variance over and above the linear model. Figure 7.1 presents a visual depiction of this curvilinear model. Note that one outlier was identified and adjusted prior to conducting this analysis. The case presented in the far right of Figure 7.1 did not qualify as an outlier and the nature of the relationship between STSS and PTGI scores was not altered if it was removed.

### **Gender effects**

Potential gender effects were investigated because some previous research has found women to experience higher levels of posttraumatic growth than men (for a review see Linley & Joseph, 2004). It was thought that it was particularly important to understand the effects of gender considering that there was a significant unequal gender distribution in the current sample. Independent samples t-test revealed no significant gender effects for any of the variables of interest in the current study.

Table 6.5.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a hierarchical regression of average weekly Vicarious Traumatic Exposure, TSS, STSS, and STSS scores squared as predictors for PTGI scores among the overall sample.*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>
<i>Step 1</i>			
Vicarious Traumatic Exposure	0.15**	0.14**	0.14**
TSS	0.15**	0.15**	0.15**
<i>Step 2</i>			
STSS		0.12*	0.19**
<i>Step 3</i>			
STSS <sup>2</sup>			-0.13*
<b>Multiple R</b>	0.23	0.26	0.28
<b>Total R<sup>2</sup></b>	0.05	0.07	0.08
<b>Adjusted R<sup>2</sup></b>	0.05	0.06	0.07
<b>R<sup>2</sup> change</b>	0.05**	0.02*	0.01*

\* p< .05 \*\* p< .01. *Note.* TSS= Traumatic Stress Schedule. STSS= Secondary Traumatic Stress Scale.

Table 6.6.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a hierarchical regression of STSS and STSS scores squared as predictors of PTGI scores among nurses.*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>
<i>Step 1</i>		
STSS	0.05	0.04
<i>Step 2</i>		
STSS <sup>2</sup>		0.04
<b>Multiple R</b>	0.05	0.07
<b>Total R<sup>2</sup></b>	>0.01	>0.01
<b>Adjusted R<sup>2</sup></b>	-0.01	-0.02
<b>R<sup>2</sup> change</b>	0.003	0.002

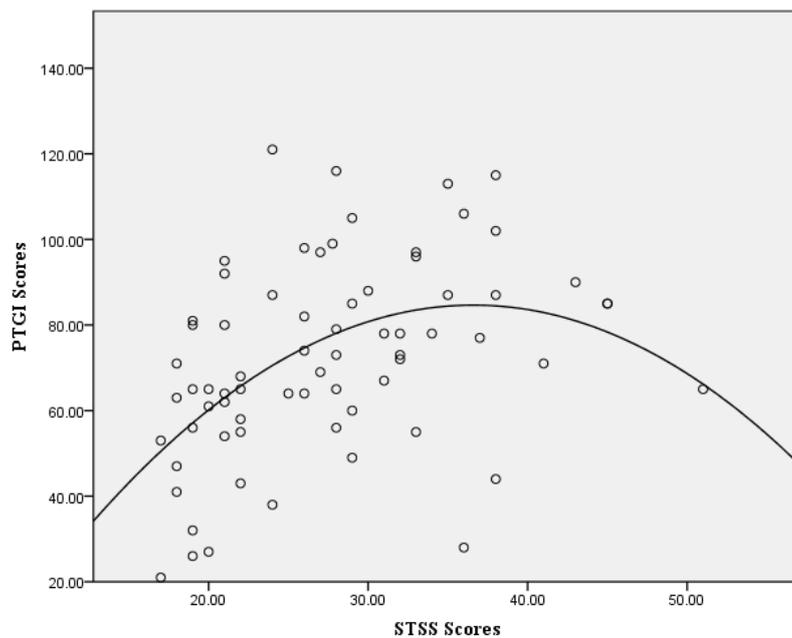
\*p< .05 \*\* p< .01. *Note.* STSS= Secondary Traumatic Stress Scale

Table 6.7.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a hierarchical regression of STSS and STSS scores squared as predictors of PTGI scores among psychologists.*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>
<i>Step 1</i>		
STSS	0.38**	0.60*
<i>Step 2</i>		
STSS <sup>2</sup>		-0.34**
<b>Multiple R</b>	0.38	0.48
<b>Total R<sup>2</sup></b>	0.15	0.23
<b>Adjusted R<sup>2</sup></b>	0.13	0.20
<b>R<sup>2</sup> change</b>	0.14**	0.08**

\*p< .05 \*\* p< .01. *Note.* STSS= Secondary Traumatic Stress Scale



*Figure 6.1.* A depiction of the curvilinear relationship between PTGI and STSS scores among psychologists.

Table 6.8.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a hierarchical regression of Years of Experience, TSS, STSS and STSS scores squared as predictors of PTGI scores among social workers.*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>
<i>Step 1</i>			
Years of Experience	0.16	0.16	0.16
TSS	0.36**	0.36**	0.36**
<i>Step 2</i>			
STSS		-0.04	0.41
<i>Step 3</i>			
STSS <sup>2</sup>			0.04
<b>Multiple R</b>	0.42	0.42	0.44
<b>Total R<sup>2</sup></b>	0.17	0.18	0.19
<b>Adjusted R<sup>2</sup></b>	0.16	0.15	<.01
<b>R<sup>2</sup> change</b>	0.17**	<.01	0.02

\*p< .05 \*\* p< .01. *Note.* TSS= Traumatic Stress Schedule; STSS= Secondary Traumatic Stress Scale

Table 6.9.

*The standardised beta values, Multiple R, total R<sup>2</sup>, and R<sup>2</sup> change for a hierarchical regression of TSS, STSS and STSS scores squared as predictors of PTGI scores among counsellors.*

<i>Variable</i>	<i>Step 1</i>	<i>Step 2</i>	<i>Step 3</i>
<i>Step 1</i>			
TSS	0.09	0.07	0.08
<i>Step 2</i>			
STSS		0.19	0.30
<i>Step 3</i>			
STSS <sup>2</sup>			-0.16
<b>Multiple R</b>	0.09	0.21	0.24
<b>Total R<sup>2</sup></b>	>0.01	0.06	0.06
<b>Adjusted R<sup>2</sup></b>	>-0.01	0.02	0.02
<b>R<sup>2</sup> change</b>	>0.01	0.04	0.01

\*p< .05 \*\* p< .01. *Note.* TSS= Traumatic Stress Schedule; STSS= Secondary Traumatic Stress Scale

## Discussion

The current study aimed to investigate the nature of the relationship between STS and VPTG, with consideration given to each of the four possible associations that have been raised in previous research- no association, a negative association, a positive association, and a curvilinear association. When investigating the overall sample, results significantly (albeit marginally) favoured a curvilinear association; the curvilinear model was able to explain a small but significant amount of the variance in participants' VPTG scores over and above the linear model. However, it appeared that this result was largely produced by the significant curvilinear STS-VPTG relationship found among psychologists. Among psychologists the curvilinear model was able to explain 8% of the variance in participants' PTGI scores over and above variance explained by the linear model. Figure 7.1 graphically depicts the nature of this relationship. Initially STS and VPTG increased correspondingly, but at a point VPTG reached a plateau; further increases in STS beyond this point were associated with a decrease in VPTG. These results differ slightly from the curvilinear relationship among doctors, therapists and nurses reported by Shiri et al., (2008a), who reported a levelling off of VPTG, rather than an inverted "U" shaped curve. However, the inverted "U" relationship reported here is consistent with findings among direct trauma survivors (e.g., Butler et al., 2005). These results suggest that moderate levels of STS are associated with the highest levels of VPTG. Joseph (2011) claimed that, among direct trauma survivors, small amounts of posttraumatic stress do not provide the appropriate platform for posttraumatic growth to occur, while too much posttraumatic growth interferes with the meaning making processes necessary to achieve posttraumatic growth; therefore, moderate levels of posttraumatic stress are most likely to coincide with posttraumatic growth. It is likely that this explanation also accounts for the relationship between STS and VPTG following vicarious traumatic exposure.

Among nurses, social workers, and counsellors STS was not found to predict VPTG, nor was there a significant correlation between these two variables. The finding that STS predicted VPTG only among psychologists may offer some explanation for the discrepant results reported in this field. It appears that the type of health professionals sampled influences the association between STS and VPTG. These results caution against the use of mixed samples as this may cause distortion to results. In addition, these results suggest that findings may not be generalisable across different professional groups. Future research will be needed to further clarify how the relationship between STS and VPTG differs among types of health professionals.

The current results may suggest that there is something unique about psychologists' work that facilitates the curvilinear STS-VPTG relationship. Psychologists tend to work with clinical populations, and therefore may be more likely than other health professionals to have contact with trauma survivors who are experiencing mental health conditions such as PTSD. In addition, the nature of psychological therapy can involve repetitive and detailed accounts of a client's trauma narrative, which may expose psychologists to greater depth of vicarious traumatic exposure. Psychologists are likely to explore their client's thoughts, feelings, and psychological and physiological reactions to the trauma in detail, and this may in some way affect how the psychologists themselves process the traumatic event. One possibility may be that psychologists work causes them to process the trauma in a similar way to direct trauma survivors themselves, which may be why the results of the current study (among psychologists) are similar to the curvilinear relationship between posttraumatic stress and posttraumatic growth reported among direct trauma survivors. In summary, it may be that the amount or depth of one's vicarious traumatic exposure, how the event is cognitively processed, or the level of posttraumatic distress experienced by one's client that effects the nature of relationship between STS and VPTG.

There are several limitations within the current study. First, causal implications cannot be drawn as the current study is entirely cross-sectional in design. This weakness is particularly evident when considering research which suggests that the nature of the STS - VPTG relationship may change over time (Barrington & Shakespeare-Finch, 2013; Joseph, 2011; Shamai & Ron, 2009). Second, there are elements of psychological growth that appear to be unique to VPTG (see Manning, de Terte, & Stephens, 2015), therefore the PTGI, which was developed for use with direct trauma survivors, may be limited in its capacity to assess all elements of VPTG. In addition, the STSS is not consistent with the most recent diagnostic criteria of PTSD; it fails to assess for negative alterations to cognition and mood. However, as more appropriate and updated scales are yet to be provided, the PTGI and STSS were deemed to be the most appropriate choice for the current study. Finally, there are sampling limitations hindering this research. First, four times as many females as males participated in the current study. This represents the unequal gender distribution in the target population (Statistics New Zealand, personal communication, April 30 2014). However, this gender discrepancy is unlikely to have impacted the results presented, as analyses revealed no significant gender differences. Second, while the sample size presented here exceeds that reported among previous research in this field (e.g., Shiri et al., 2008a), a larger sample would have provided a stronger foundation for analyses, particularly when conducting analysis among individual professions. Analyses should be replicated among a larger sample in order to produce findings that will have greater weight shaping future research and will be more generalisable to the wider population. Third, the current study utilised a self-selected sample, and it is possible that health professionals who participated in the current study differed in some way from those who did not.

### Summary

The current study aimed to investigate the nature of the relationship between STS and VPTG. A curvilinear relationship best explained the STS-VPTG relationship among psychologists. This can be characterised as an inverted “U” shaped curve, with moderate levels of STS having the highest association with VPTG. STS did not predict VPTG among nurses, counsellors, or social workers. One possible explanation for these results is that something in the nature of the psychologists’ work influences the relationship between STS and VPTG in a way that differs from other health professions. This research highlights the psychological impact, both positive and negative, that vicarious traumatic exposure has on health professionals in New Zealand. Results emphasise the need to identify and provide support for those health professionals experiencing the greatest levels of STS. These individuals are the least likely to experience VPTG, and as a result are most likely to experiencing on-going psychological distress (Butler et al., 2005). As presented in a previous manuscript (Chapter 4 of this thesis), the utilisation of coping strategies such as self-care, social support, and humour is associated with lower levels of STS and higher levels of VPTG among health professions, and may represent one tool health professionals can use to protect themselves in the workplace. The opportunity to cognitively process the vicarious traumatic exposure, perhaps through personal therapy, may also be beneficial among health professionals.



**MASSEY UNIVERSITY**  
GRADUATE RESEARCH SCHOOL

**STATEMENT OF CONTRIBUTION  
TO DOCTORAL THESIS CONTAINING PUBLICATIONS**

(To appear at the end of each thesis chapter/section/appendix submitted as an article/paper or collected as an appendix at the end of the thesis)

We, the candidate and the candidate's Principal Supervisor, certify that all co-authors have consented to their work being included in the thesis and they have accepted the candidate's contribution as indicated below in the *Statement of Originality*.

**Name of Candidate:** Shekinah Manning

**Name/Title of Principal Supervisor:** Ian de Terte

**Name of Published Research Output and full reference:**

Manning-Jones, S., de Terte, I., & Stephens, C (2015). The relationship between vicarious posttraumatic growth and secondary traumatic stress among New Zealand health professionals. Manuscript to be submitted for publication.

**In which Chapter is the Published Work:** Chapter 6

Please indicate either:

- The percentage of the Published Work that was contributed by the candidate:  
and / or

- Describe the contribution that the candidate has made to the Published Work:

The candidate is responsible for the work put into this manuscript (e.g., design, analysis, and write-up) and the supervisors have contributed to the manuscript in the same way that they have contributed to the chapters in a traditional thesis: by providing guidance and feedback.

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## **Chapter Seven: Conclusion**

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This thesis provides the first exploration VPTG and coping among New Zealand health professionals. There were four overarching research question. Results are presented in relation to each research question.

### **Research question A: Do the coping strategies utilised by health professionals' predict their likelihood of developing STS or VPTG?**

Overall, results supported the idea that the types of coping strategies health professionals utilise following vicarious traumatic exposure can influence their likelihood of experiencing STS and/or VPTG. Self-care and social support from friends and family were found to be negative predictors of STS, while humour, self-care, and social support from peers were found to be positive predictors of VPTG. These results suggest that different coping strategies function in different ways to benefit health professionals; not all coping strategies appear to 'protect' against STS, just as not all predict VPTG. Therefore, the utilisation of a wide range of coping strategies is likely to be beneficial. There may be particular benefits in the utilisation of self-care in the workplace, because of the dual role it plays in protecting against STS and enhancing the likelihood of VPTG.

### **Research question B: Do coping strategies mediate the relationship between vicarious traumatic exposure and VPTG?**

Of the coping strategies included in the current research, only peer social support qualified for investigation as a mediating variable. Results found peer support to be a significant partial mediator of the relationship between vicarious traumatic exposure and VPTG. It appears that following vicarious traumatic exposure, the amount of peer support health professionals receive from their colleagues increases; peers provide them with a safe

place to process the event and foster the development of new perspectives (Catherall, 1995), which in turn facilitates the development of VPTG. However, while statistically significant, the practical mediating effect may be very small.

**Research question C: Do different types of health professionals differ in their levels of STS, VPTG, and coping following vicarious traumatic exposure?**

Results revealed significant differences between health professionals in regards to STS, VPTG, and coping. Overall, social workers were found to experience the highest levels of both STS and VPTG. This may suggest that the very factors that put social workers at risk of developing STS, potentially identification with their clients, also facilitate VPTG. In contrast, psychologists were found to report the lowest levels of STS and VPTG, possibility due to their low level of reported vicarious traumatic exposure, or perhaps due to some other professional characteristics, such as high levels of resilience or maintaining professional boundaries.

Regarding coping, psychologists and counsellors were generally found to engage in the highest levels of coping, while nurses and doctors tended to report the lowest. This may reflect differences in professional training or the tendency to work with physical rather than mental health. However, the opposite pattern was found regarding peer social support; nurses were found to experience significantly greater levels of peer support than psychologists. A tendency for psychologists to work in isolated settings (i.e., private practice), lack of shared patient responsibility, and issues of confidentiality may have contributed to this finding. Daily meetings in settings such as District Health Boards and informal peer support groups may prove beneficial in protecting psychologists against peer isolation.

**Research question D: How do STS and VPTG relate to one another?**

Finally, the current study aimed to investigate the nature of the relationship between STS and VPTG, and investigate whether this relationship remained consistent across different

groups of health professionals. Because of the high level of inconsistency in previous literature, this study was presented as explorative; it was not driven by specific hypotheses. Results supported a curvilinear relationship, with moderate levels of STS being associated with the highest levels of VPTG. STS levels that are too low may indicate that the vicarious traumatic exposure did not significantly impact the health professional's assumptions about themselves and the world; in this case they would have no reason to engage in the meaning making processes that lead to VPTG. Meanwhile, very high STS may leave health professionals too distressed to engage in meaningful rumination necessary for VPTG; they may become unable to move past their distress in order to achieve growth. Moderate levels of STS occur when a health professional has been significantly impacted by a vicarious traumatic exposure, but not to the point that they are unable to process their experience; conditions that are necessary for posttraumatic growth to develop (Joseph, 2011). However, it should be noted that this pattern was found solely among psychologists; among all other professions STS did not predict VPTG (although this relationship could not be assessed among doctors). This may suggest something unique about the role of psychologists, and perhaps reflects the depth at which psychologists are exposed to trauma related details or the way they process trauma information.

#### **Limitations of the current research**

Limitations of the current research have been presented in each relevant manuscript. However, overarching limitations will also be presented here. There are several assessment limitations worth acknowledging in the current research. First, because the PTGI was developed for use with direct trauma survivors, it may not fully capture those domains important to VPTG. A review of previous literature suggests that there may be subtle differences between the way direct and vicarious posttraumatic growth manifest (e.g., Arnold

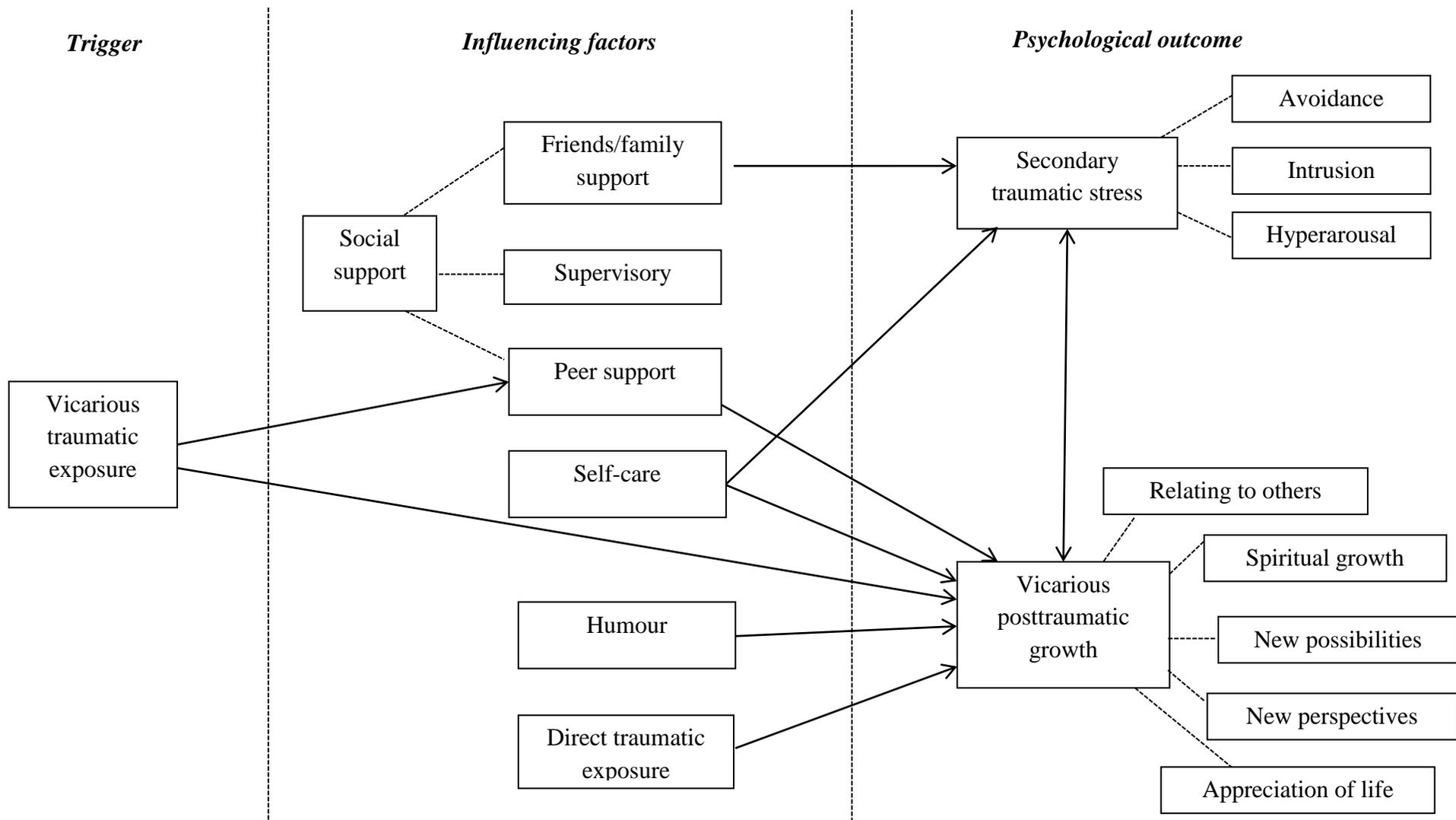


Figure 7.1. A visual depiction of the how traumatic exposure and coping strategies were found to influence the psychological outcome variables (STS and VPTG) measured in the current research. Single head arrows indicate significant regression results. Double head arrows indicate a significant correlation.

et al., 2005), and even that there may be elements of growth unique to VPTG (e.g., Barrington & Shakespeare-Finch, 2011), therefore best practice would be to use a measure designed specifically to assess VPTG. Unfortunately such a measure is not yet available. Further, while the current research cued participants to focus on their work with trauma survivors while filling out the PTGI, it is possible that participants' responses reflect personal growth related to their own personal trauma experiences, rather than work-place vicarious traumatic exposure. While personal trauma history was controlled for when necessary, this is still a limitation of the current research worth acknowledging.

Second, the current research did not measure STS in a way that is consistent with the most recent diagnostic criteria of PTSD (American Psychiatric Association, 2013; see Appendix A). The STSS does not measure negative changes to cognitions and mood. Including this component in the assessment of STS may have altered the results presented in this thesis. As far as the author is aware, a measure of STS that is consistent with the latest diagnostic criteria is not yet available.

Third, while the Social Support Scale was selected for use in the current study for its ability to simultaneously assess several types of social support, this measure may have been unsuitable for health professionals largely working in isolation (without supervisors or even peers), such as general practitioners. Therefore, low levels of social support reported by doctors may reflect unsuitability of the measure for this particularly population, rather than a true absence of social support.

Fourth, participants in the current study were left to subjectively decide what qualified as a traumatic event. This decision was based on research that suggests that what is considered traumatic is subjective and varies between individuals (e.g., Paton & Smith, 1996). However, this may have resulted in participants overlooking events that they did not

consider to be traumatic which may have been important to the current research, or overstating their traumatic exposure by including negative everyday life events. Therefore, the current study may not have accurately captured vicarious traumatic exposure. It is possible that different results would have been produced had a different measure of vicarious traumatic exposure been utilised, for example counting the number of discrete traumatic events participants had vicariously been exposed to. In addition, the measure of vicarious traumatic exposure utilised (average number of hours exposed to trauma victims) provides only a picture of participants' current levels of exposure; it does not take into account cumulative exposure built up over their entire careers.

In addition, the current research is entirely cross-sectional and, while more advanced statistical analyses than correlations are presented, no inferences regarding causality can be made. A longitudinal design with several points of data collection would have allowed for more of such inferences to be made; however, time constraints made this an unfeasible design for the current research.

It is important to consider that the results presented in this thesis may not be generalisable to other health care professions, or professionals living in other countries. In addition, it is unclear how representative the current sample is of the wider population. Of the general population in New Zealand, 15% identify themselves as Maori (Statistics New Zealand, 2015), while only 4% of the current sample identified as Maori, therefore this cultural group may have been underrepresented. However, it appears that the percentage of Maori participants in the current study is consistent with the percentage of Maori who are health professionals; the Ministry of Health (2014) reported that, for the period between 2013 and 2014, Maori represented 2.9% of medical doctors, 6.6% of nurses, and 5.2% of midwives. In 2009 (Ministry of Health, 2011), 4.5% of psychologists identified as Maori, as did 4.6% of dentists and 4.3% of physiotherapist. These statistics highlight the

underrepresentation of Maori in health professions across New Zealand. Gender representativeness also needs to be considered as a very large proportion (82%) of the current sample was also female. Data provided by Statistics New Zealand (personal communication, April 30 2014) suggested that 80% of the health professionals working in the professionals included in the current study were female. Therefore, it appears that the current study may be representative of the health professional population in terms of culture and gender, although it is not known whether it is representative in terms of vicarious traumatic exposure, direct traumatic exposure, or years of experience, and this limitation should be kept in mind when generalising results.

Finally, there are potential limitations to the validity of the wider posttraumatic growth construct that should be explored. First, there is controversy around whether perceived posttraumatic growth equates to actual positive change. It has been suggested that “before-and after” studies that report changes to participant’s character strengths (e.g., Peterson & Seligman, 2003) and corroboration by significant others (e.g., Shakespeare-Finch & Enders, 2008) provide evidence for actual change. However, other research has suggested that posttraumatic growth may be “illusory” and tends to be overestimated (Taylor, 1983; Taylor & Armor, 1996). Recent research suggests a two-factor model that incorporates both illusory and actual posttraumatic growth (Zoellner, Rabe, Karl & Maercker, 2008), but because there is no measure currently able to distinguish actual from illusory growth, the accuracy of this model is unknown. In addition, there is contention regarding whether posttraumatic growth is best characterised as an outcome in itself (e.g., Tedeschi & Calhoun, 2004), or whether it is better characterised as a process or a type of cognitive coping strategy (Affleck & Tennen, 1996; Park & Helgeson, 2006). Furthermore, the posttraumatic growth construct has been criticised for its exclusive focus on positive change; Wittmann and Büchi (2010) have argued that a more comprehensive posttraumatic transformation construct, that

considers both positive and negative change, may provide a more accurate and comprehensive picture of the psychological experience following trauma. Finally, it has been suggested that positive psychological change identical to posttraumatic growth may develop following life events that should not be considered “traumatic”; in fact it may even occur following positive experiences (Anderson & Lopez-Baez, 2008). Therefore, reports of posttraumatic growth may in fact be capturing psychological growth originating from other life events. These critiques of the validity of the posttraumatic growth construct are also applicable to VPTG. Future research needs to work towards ascertaining the validity of this construct.

### **Future research**

Self-care was found to be the only coping strategy that simultaneously predicted lower levels of STS and higher levels of VPTG. Future research could investigate whether certain types of self-care strategies, for example physical or spiritual activities, provide particular benefits in either of these domains. This greater depth of analysis would enable health professionals to engage in the self-care strategies that are likely to be the most helpful to them at a particular point in time, for example they may choose strategies particularly protective against STS immediately after vicarious traumatic exposure, and then engage in strategies especially facilitative of VPTG later on.

Future research could also further investigate the role of humour in the development of VPTG. As far as the author is aware, this is the first piece of research that has investigated the nature of the relationship between humour and VPTG, and results provide preliminary evidence for a positive association between these two variables. Future research could investigate whether this association is maintained in populations other than health professionals, and whether forms of humour other than coping humour are also positively associated with VPTG. In particular there has been a lot of research regarding the use of

black humour in the work place, defined as morbid humour that can often appear inappropriate in the situation (Rowe & Regehr, 2010). There is evidence to suggest that black humour can offer benefits such as increased social support and group cohesion, aiding health professionals to maintain a healthy distance from their work, and function as an emotional release (for a review see Rowe & regehr, 2010); it would be beneficial to investigate whether black humour also functions to facilitate VPTG.

Future research could also investigate a wider range of coping strategies than was included here. Psychotherapy, self-education, and social action (e.g., advocacy) are just a few of the other coping strategies utilised by health professionals exposed to vicarious traumatic exposure (Follette, Polusny, & Milbeck, 1994). In addition, the current research focused exclusively on adaptive coping strategies; future research could include maladaptive coping strategies such as avoidance, withdrawal, and drug and alcohol use. The inclusion of a wider range of coping strategies would enable us to better understand how health professional cope with vicarious traumatic exposure, and in turn how these coping strategies influence psychological outcomes.

The current research found a significant relationship between STS and VPTG to exist only among psychologists. It was hypothesised that that the nature of the client groups that psychologists work with, the way they cognitively process vicarious traumatic exposure, or the way they use coping strategies may impact the nature of the STS-VPTG relationship. Future research could explore these variables as potential moderators of the relationship among STS and VPTG.

Figure 7.1 presents a visual depiction of the main results produced in the current research. Each of the presented relationships was tested individually, and they were then collated to produce an overall VPTG model. Future research could test the global validity of this model. There is no published research using Structural Equation Modelling to create a

model of VPTG; such research would help to bring a greater understanding to the development of VPTG and important facilitating factors.

The current research was entirely quantitative in design. Future mixed methods or qualitative research would be beneficial in understanding how coping strategies function to protect against STS and potentially facilitate VPTG. For example, a qualitative study may be able to begin to answer why peers can provide an additional pathway to experiencing VPTG, or what it is about social support from friends and family that protects against STS. Such research may provide more meaningful implications for health professionals and their employing organisations.

Vicarious posttraumatic growth was assessed by asking participants to indicate the average number of hours per week they work with trauma survivors. As outlined in the previous section, this measure may be limited in its ability to measure vicarious traumatic exposure accurately. Future research should work towards creating a valid and robust way of assessing vicarious traumatic exposure that is suitable for use in quantitative research. Such research would enable the accurate measurement of vicarious traumatic exposure, and in turn how this exposure relates to psychological reactions such as STS and VPTG.

Finally, future research should work towards providing a measure designed specifically for the assessment of VPTG. This would ensure that quantitative research was accurately capturing positive psychological change resulting from vicarious traumatic exposure, rather than one's personal experience, and that all domains relevant to VPTG were assessed. Such research could work towards providing validity for VPTG as a construct. It would also be beneficial to produce an updated version of the Secondary Traumatic Stress Scale that was consistent with the DSM 5 diagnostic criteria of PTSD.

### **Implications**

The current study has several implications for health professionals working with trauma survivors, and the organisations that employ them. First, results from the current research suggest that VPTG and STS are not opposite ends of the same continuum. Therefore, health professionals and their employers should not assume that if an individual displays VPTG they are not also experiencing shock and horror regarding the vicarious traumatic exposure and are in need of support to reduce symptoms of STS. Health professionals exposed to trauma should be given support despite any positive psychological change that they experience, and the development of VPTG should not be seen as a sign that they are “cured” from STS. This may be particularly relevant for health professionals in the social work profession, as these professionals were found to have the highest levels of both STS and VPTG. It is important that their needs are not overlooked in the presence of VPTG.

Second, results of the current research suggest that self-care may be a particularly powerful coping strategy; utilisation of this strategy appears to simultaneously protect against STS and enhance the likelihood of VPTG. Health professionals who work with trauma survivors should aim to engage in regular self-care activities to maintain their psychological wellbeing, for example they may engage in regular exercise, spend time engaging in activities they enjoy, and meditate or engage in other spiritual/ religious practices. It could also be beneficial for self-care to be promoted through health-care organisations, for example encouraging professionals to maintain work-life balance, healthy caseloads, and having talk therapy available to professionals who are vicariously exposed to trauma. Health professionals could be educated on the benefits of their self-care throughout their training, and given reminders in the workplace, for example through workshops.

Results from the current study suggest that peer support may act as a pathway between vicarious traumatic exposure and VPTG. Psychologists and doctors were the two

professions found to have the lowest levels of both peer support and VPTG. Increasing peer support may be one way to enhance the likelihood of VPTG among psychologists and doctors. This could involve holding daily meetings in setting such as District Health Boards, promoting informal peer supervision in the workplace, or encouraging professionals to form their own peer support groups if they are working in isolated settings such as private practice.

Generally nurses and doctors were found to be the two professions who reported utilising the lowest levels of coping strategies. Results from the current research suggest that it would be beneficial if these health professionals were educated on the benefits of using coping strategies following vicarious traumatic exposure, and what coping strategies are most effective at reducing STS and enhancing the likelihood of VPTG. Psychologists, counsellors, and social workers may be more aware of the benefits of coping strategies due to the nature of their work, but it appears that this is an area lacking for doctors and nurses.

Overall, implications of this research point to the importance of promoting and facilitating coping strategies in the workplace, both at an individual and organisational level. Results from the current research suggest that this would contribute to a workforce that was more resilient to the negative effects of vicarious traumatic exposure, better able to provide care to direct trauma survivors, and were better placed to achieve positive personal growth as a result of their experiences.

### **Personal reflection**

This thesis was completed as part of the Doctorate of Clinical Psychology qualification. Yet it has been easy to think of my academic research and my clinical training as two separate tasks. Here I reflect upon just a few of the lessons I will take forth as I move into life as a clinician.

First, I have learnt that there really can be a silver lining to terrible events. When I first came across the notion of posttraumatic growth, it fascinated and baffled me; how could

traumatic events result in the survivor reaching a higher level of psychological functioning? I now have a greater understanding of the complexity of ways people are affected by trauma. I will take this forward with me as a clinician, and I hope it will improve my clinical abilities when working with trauma populations.

Second, I have greater respect for the utilisation of coping strategies in daily life. Finding ways to integrate self-care practices into my daily life, identifying varying forms of social support, and learning to find the humour in difficult situations will be a focus for me in the first few years of my career. By utilising such coping strategies I will be a more resilient clinician for my clients and be able to maintain better psychological wellbeing over the course of my career.

Finally, completing this research has taught me the art of perseverance. Every doctoral student's journey has struggles and mine has been no exception. As a result I feel better equipped to handle difficult events during my career, and have greater confidence in my abilities. Overall, my research has taught me many lessons I will take forward as a clinician; I am academically, personally, and professionally better off as a result.

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## Appendix A

### DSM 5 diagnostic criteria of Posttraumatic Stress Disorder

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#### Diagnostic Criteria 309.81 (F43.10)

- **Note:** The following criteria apply to adults, adolescents, and children older than 6 years.

A. Exposure to actual or threatened death, serious injury, or sexual violence in one (or more) of the following ways:

1. Directly experiencing the traumatic event(s).
2. Witnessing, in person, the event(s) as it occurred to others.
3. Learning that the traumatic event(s) occurred to a close family member or close friend. In cases of actual or threatened death of a family member or friend, the event(s) must have been violent or accidental.
4. Experiencing repeated or extreme exposure to aversive details of the traumatic event(s) (e.g., first responders collecting human remains; police officers repeatedly exposed to details of child abuse).
  1. **Note:** Criterion A4 does not apply to exposure through electronic media, television, movies, or pictures, unless this exposure is work related.

B. Presence of one (or more) of the following intrusion symptoms associated with the traumatic event(s), beginning after the traumatic event(s) occurred:

1. Recurrent, involuntary, and intrusive distressing memories of the traumatic event(s).
  1. **Note:** In children older than 6 years, repetitive play may occur in which themes or aspects of the traumatic event(s) are expressed.
2. Recurrent distressing dreams in which the content and/or affect of the dream are related to the traumatic event(s).

1. **Note:** In children, there may be frightening dreams without recognizable content.

3. Dissociative reactions (e.g., flashbacks) in which the individual feels or acts as if the traumatic event(s) were recurring. (Such reactions may occur on a continuum, with the most extreme expression being a complete loss of awareness of present surroundings.)

1. **Note:** In children, trauma-specific reenactment may occur in play.

4. Intense or prolonged psychological distress at exposure to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

5. Marked physiological reactions to internal or external cues that symbolize or resemble an aspect of the traumatic event(s).

C. Persistent avoidance of stimuli associated with the traumatic event(s), beginning after the traumatic event(s) occurred, as evidenced by one or both of the following:

1. Avoidance of or efforts to avoid distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

2. Avoidance of or efforts to avoid external reminders (people, places, conversations, activities, objects, situations) that arouse distressing memories, thoughts, or feelings about or closely associated with the traumatic event(s).

D. Negative alterations in cognitions and mood associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:

1. Inability to remember an important aspect of the traumatic event(s) (typically due to dissociative amnesia and not to other factors such as head injury, alcohol, or drugs).

2. Persistent and exaggerated negative beliefs or expectations about oneself, others, or the world (e.g., “I am bad,” “No one can be trusted,” “The world is completely dangerous,” “My whole nervous system is permanently ruined”).

3. Persistent, distorted cognitions about the cause or consequences of the traumatic event(s) that lead the individual to blame himself/herself or others.
  4. Persistent negative emotional state (e.g., fear, horror, anger, guilt, or shame).
  5. Markedly diminished interest or participation in significant activities.
  6. Feelings of detachment or estrangement from others.
  7. Persistent inability to experience positive emotions (e.g., inability to experience happiness, satisfaction, or loving feelings).
- E. Marked alterations in arousal and reactivity associated with the traumatic event(s), beginning or worsening after the traumatic event(s) occurred, as evidenced by two (or more) of the following:
1. Irritable behaviour and angry outbursts (with little or no provocation) typically expressed as verbal or physical aggression toward people or objects.
  2. Reckless or self-destructive behaviour.
  3. Hypervigilance.
  4. Exaggerated startle response.
  5. Problems with concentration.
  6. Sleep disturbance (e.g., difficulty falling or staying asleep or restless sleep).
- F. Duration of the disturbance (Criteria B, C, D, and E) is more than 1 month.
- G. The disturbance causes clinically significant distress or impairment in social, occupational, or other important areas of functioning.
- H. The disturbance is not attributable to the physiological effects of a substance (e.g., medication, alcohol) or another medical condition.

*Specify* whether:

- **With dissociative symptoms:** The individual's symptoms meet the criteria for posttraumatic stress disorder, and in addition, in response to the stressor, the individual experiences persistent or recurrent symptoms of either of the following:
  1. **Depersonalization:** Persistent or recurrent experiences of feeling detached from, and as if one were an outside observer of, one's mental processes or body (e.g., feeling as though one were in a dream; feeling a sense of unreality of self or body or of time moving slowly).
  2. **Derealisation:** Persistent or recurrent experiences of unreality of surroundings (e.g., the world around the individual is experienced as unreal, dreamlike, distant, or distorted).
    - **Note:** To use this subtype, the dissociative symptoms must not be attributable to the physiological effects of a substance (e.g., blackouts, behaviour during alcohol intoxication) or another medical condition (e.g., complex partial seizures).

*Specify if:*

**With delayed expression:** If the full diagnostic criteria are not met until at least 6 months after the event (although the onset and expression of some symptoms may be immediate).

## Appendix B: Participant Information Sheet

Qualtrics Survey Software



Information Page



**MASSEY UNIVERSITY**  
COLLEGE OF HUMANITIES  
AND SOCIAL SCIENCES  
TE KURA PUKENGA TANGATA

### Personal growth among health professionals; The roles of social support, health practices and humour.

#### *Participant Information Sheet*

**Hello,**  
My name is Shekinah Manning and I am a doctoral student at Massey University. I am conducting research that investigates the positive psychological growth that health professionals experience as a result of their work with clients who have experienced traumatic events. My research project is being supervised by Dr Ian de Terte and Professor Christine Stephens.

*What is this research about?*

Positive psychological growth refers to the positive cognitive, emotional, interpersonal and spiritual changes that health professionals experience as a result of the work they do with clients who have experienced a traumatic event. We are interested in how this positive psychological growth is related to the stress that can arise from helping a traumatised person, and the influence of social support, adaptive health practices and humour.

*Who is eligible to participate?*

Doctors, nurses, psychologists, psychiatrists, counsellors and social workers currently residing in any country are invited to participate in this research.

*What will participation involve?*

Participation in this research involves filling out a one-off online survey. This survey will take approximately 15-20 minutes to complete. It includes demographic questions, asks about your experience with traumatised clients, and includes measures of personal growth, social support, adaptive health practices, humour and stress. It also contains a brief list of traumatic events that you may have experienced; this is included so that we can make sure that the growth and stress you report is related to your work rather than your own personal experiences. As a small token of my appreciation, you will be given the opportunity to be entered into a draw to win one of three \$50 book vouchers.

*Is it confidential?*

Yes. Any information you give while filling out this survey will be confidential. Data will be stored on my personal password-protected laptop and no one other than my primary supervisor and I will have access.

**What happens to the data?**

Data collected in this research will be used in the thesis component of my Doctorate of Clinical Psychology and will be written up in articles to be submitted to appropriate journals. It is your right as a participant to receive a summary of the findings that arise from this study.

**Your rights as a participant:**

You are under no obligation to accept this invitation. Completion of the survey implies your consent. You have the right to decline to answer any particular question.

**Where can you get support?**

We do not expect that being involved in this research will raise any issues for you. However, if any of the questions do cause you some distress we encourage you to seek support from your supervisor, talk to your professional body, or contact your local GP.

**Want more information?**

If you have any more questions please do not hesitate to contact either me or my supervisor.

Many thanks,  
Shekinah Manning

**Contact information**

Researcher	Supervisor
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**Te Kunenga  
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*This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 13/68.*

*If you have any concerns about the conduct of this research, please contact Dr Brian Finch, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 350 5799 x 84459, email [humanethicsoutha@massey.ac.nz](mailto:humanethicsoutha@massey.ac.nz).*

## Appendix C: Online Survey

What is your primary occupation?

- Doctor
- Nurse
- Psychologist
- Psychiatrist
- Social worker
- Counsellor
- Other (please specify)

How old are you? (In years)

Which ethnicity are you?

(If you identify with more than one ethnic group, please select the one you primarily identify with.)

- New Zealand European
- Pākehā
- New Zealand Māori
- Samoan
- Cook Island Māori
- Tongan
- Niuean
- Chinese
- Indian
- Other (please specify)

What country do you currently live in?

- Doctor
- Nurse
- Psychologist
- Psychiatrist
- Social worker
- Counsellor
- Other (please specify)

How long have you been working in this field? (*in years*)

Would you consider yourself to primarily be a *mental* health professional?

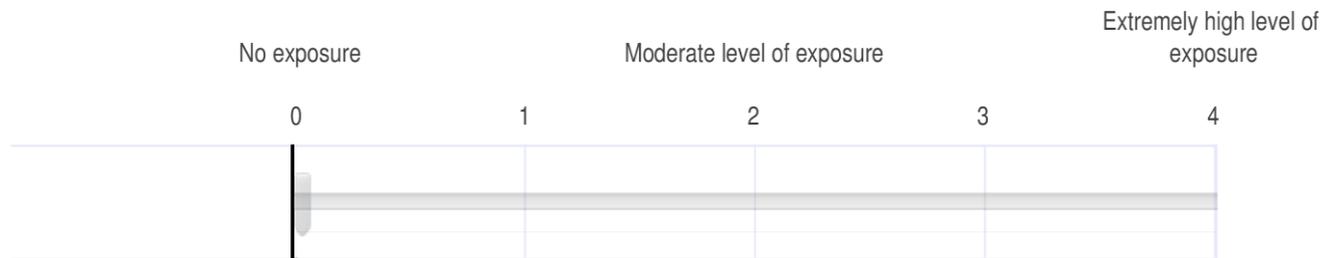
- Yes
- No

### Demographics continued...

How many hours per week (on average) do you work with clients who you know have experienced a traumatic event?

How many hours in the past 7 days have you worked with clients who you know have experienced a traumatic event?

Taking into consideration your entire career, how would you rate your overall level of exposure to clients who you know have experienced a traumatic event?



## Social support

## Social support

These questions are about the sorts of support that you may receive from different people. For each question below please indicate the amount of support that you get from each person.

How much does each of these people go out of their way to do things to make your work easier for you?

	Very little	A little	Some	A lot	A great deal
Your immediate supervisor	<input type="radio"/>				
Other people at work	<input type="radio"/>				
Your spouse/partner, friends and relatives	<input type="radio"/>				

How easy is it to talk with each of the following people?

	Very little	A little	Some	A lot	A great deal
Your immediate supervisor	<input type="radio"/>				
Other people at work	<input type="radio"/>				
Your spouse/partner, friends and relatives	<input type="radio"/>				

How much can each of these people be relied on when things get tough at work?

	Very little	A little	Some	A lot	A great deal
Your immediate supervisor	<input type="radio"/>				
Other people at work	<input type="radio"/>				
Your spouse/partner, friends and relatives	<input type="radio"/>				

How much is each of the following people willing to listen to your personal problems?

	Very little	A little	Some	A lot	A great deal
Your immediate supervisor	<input type="radio"/>				
Other people at work	<input type="radio"/>				
Your spouse/partner, friends and relatives	<input type="radio"/>				

How much does each of these people help you to feel prepared for your work?

	Very little	A little	Some	A lot	A great deal
Your immediate supervisor	<input type="radio"/>				
Other people at work	<input type="radio"/>				
Your spouse/partner, friends and relatives	<input type="radio"/>				

## Health practices

## Health practices

These next questions look at different health practices that people use in their everyday lives. Please indicate your level of agreement with each of the following statements.

	Never	Rarely	Sometimes	Often	Almost always
I talk to someone during stressful periods.	<input type="radio"/>				
I make time to engage in leisure activities regardless of my workload.	<input type="radio"/>				
When feeling stressed about work, I seek supervision.	<input type="radio"/>				
I attend personal psychotherapy sessions to address feelings of distress about work.	<input type="radio"/>				
I take inventory of possible warning signs of distress and seek out self-care strategies to manage them.	<input type="radio"/>				
	Never	Rarely	Sometimes	Often	Almost always
I make time to engage in physical activity.	<input type="radio"/>				
I attend workshops that provide instruction on positive stress management techniques (i.e., relaxation methods, meditation, etc...)	<input type="radio"/>				
I discuss personal, emotional, physical, and spiritual development with significant others.	<input type="radio"/>				
I take vacations during the year.	<input type="radio"/>				
I take part in peer supervision when work becomes difficult.	<input type="radio"/>				
	Never	Rarely	Sometimes	Often	Almost always
I engage in personal hobbies outside the realm of healthcare.	<input type="radio"/>				
I attend to my personal religious and spiritual needs.	<input type="radio"/>				
When feeling distressed, I feel					

it's OK to take a break from what I am doing.	<input type="radio"/>				
I take time to be aware of my diet and use healthy eating habits.	<input type="radio"/>				
When overwhelmed, I take time to think about and use positive ways to cope with stress.	<input type="radio"/>				
When stressed, I use positive self-talk to put aside negative thoughts.	<input type="radio"/>				
I take part in many personally fulfilling activities.	<input type="radio"/>				
I maintain strong support groups including family, friends, and faculty.	<input type="radio"/>				
I choose work-related activities that interest me.	<input type="radio"/>				
I work to create a comfortable work environment for myself.	<input type="radio"/>				
	Never	Rarely	Sometimes	Often	Almost always
I take time to volunteer in the community.	<input type="radio"/>				
I maintain a balance between work, family, and play.	<input type="radio"/>				
I avoid self-blame and self-denigration.	<input type="radio"/>				
I think back to positive, life transforming, or breakthrough moments with a client as a way to appreciate the rewards of my work.	<input type="radio"/>				
I use my sense of humour when feeling overwhelmed or stressed.	<input type="radio"/>				
	Never	Rarely	Sometimes	Often	Almost always
I set realistic goals for myself regarding my work.	<input type="radio"/>				
I seek positive solutions to difficulties I encounter.	<input type="radio"/>				
I actively try to be in touch with my feelings in the moment.	<input type="radio"/>				
I attend to feedback from others regarding my stress level and professional functioning.	<input type="radio"/>				
I maintain self-awareness of the impact that my personal and professional experiences have on me and my work.	<input type="radio"/>				





## Growth continued...

### Selection options in full

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

Please rate each statement according to the options listed in full above.

	Did not experience	Very small degree	Small degree	Moderate degree	Great degree	Very great degree
I can better appreciate each day.	<input type="radio"/>					
I have more compassion for others.	<input type="radio"/>					
I am able to do better things with my life.	<input type="radio"/>					
New opportunities are available which wouldn't have been otherwise.	<input type="radio"/>					
	Did not experience	Very small degree	Small degree	Moderate degree	Great degree	Very great degree
I put more effort into my relationships.	<input type="radio"/>					
I have a stronger religious faith.	<input type="radio"/>					
I discovered that I'm stronger than I thought I was.	<input type="radio"/>					
I learned a great deal about how wonderful people are.	<input type="radio"/>					
	Did not experience	Very small degree	Small degree	Moderate degree	Great degree	Very great degree
I developed new interests.	<input type="radio"/>					
I better accept needing others.	<input type="radio"/>					
I established a new path for my life.	<input type="radio"/>					

### Progress

**Almost there!**

**Only two sections to go :)**

## Secondary traumatic stress

## Stress

The following is a list of statements made by persons who have been impacted by their work with traumatised clients. Read each statement, then indicate how frequently the statement was true for you in the past seven (7) days by indicating the corresponding selection for each statement.

	Never	Rarely	Occasionally	Often	Very often
I felt emotionally numb.	<input type="radio"/>				
My heart started pounding when I thought about my work with clients.	<input type="radio"/>				
It seemed as if I was reliving the trauma(s) experienced by my client(s).	<input type="radio"/>				
I had trouble sleeping.	<input type="radio"/>				
I felt discouraged about the future.	<input type="radio"/>				
Reminders of my work with clients upset me.	<input type="radio"/>				
	Never	Rarely	Occasionally	Often	Very often
I had little interest in being around others.	<input type="radio"/>				
I felt jumpy.	<input type="radio"/>				
I was less active than usual.	<input type="radio"/>				
I thought about my work with clients when I didn't intend to.	<input type="radio"/>				
I had trouble concentrating.	<input type="radio"/>				
I avoided people, places, or things that reminded me of my work with clients.	<input type="radio"/>				
	Never	Rarely	Occasionally	Often	Very often
I had disturbing dreams about my work with clients.	<input type="radio"/>				
I wanted to avoid working with some clients.	<input type="radio"/>				
I was easily annoyed.	<input type="radio"/>				
I expected something bad to happen.	<input type="radio"/>				
I noticed gaps in my memory about client sessions.	<input type="radio"/>				

## Direct traumatic exposure

## Direct traumatic exposure

In this final section we ask you to indicate whether any of the following traumatic events has happened to you. As mentioned in the information sheet, this is so that we can make sure that the growth and stress you report is related to your work rather than your own personal experiences.

Please indicate whether any of the events have happened to you since you have been a health professional and the number of times that this event has occurred.

	No	Yes	If yes, how many times?
Has anyone taken something from you by force or threat force, such as robbery, mugging or hold up?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you been physically assaulted or injured or had your life placed under threat by another person?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Has anyone forced you to have sex by using force or threat of harm? This includes any type of unwanted sexual activity.	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you suffered injury or property damage because of a fire?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you suffered injury, evacuation, or property damage because of severe weather or either a natural or man-made disaster?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
	No	Yes	If yes, how many times?
Has a close friend or family member died because of an accident, homicide, or suicide?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you been in a motor vehicle accident serious enough to cause injury to one or more passengers?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you served in military combat?	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
Have you experienced some other shocking or distressing event, something that has not been mentioned yet? <i>If so, please describe in a few words (eg; "kidnapping")</i>	<input type="radio"/>	<input type="radio"/>	<input type="text"/>
<input type="text"/>			

**Appendix D:****Email sent to healthcare organisations and potential participants**

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Hi (name)

My name is Shekinah Manning and I am conducting doctoral research through Massey University. I am emailing you because I believe my research will be of interest to your organisation. I am researching the ways in which health professionals experience personal growth as a result of working with clients who have experienced traumatic events. I would like to invite members of your organisation to participate in my research, and was hoping that information about my research could be sent out via your emailing list. Alternatively I can send you a hard copy of the information and an advertisement of the research if you would prefer. If you are able to distribute information I would be very appreciative. I have included a short paragraph below describes the research and contains a link to the online survey which could be copied into an email to your members.

Please let me know if you have any queries.

Many thanks,

Shekinah

\*\*\*\*\*

**Calling all health professionals!!!**

You are invited to participate in novel and valuable research investigating personal growth among health professionals and the influence of social support, health practices and humour. Participation only takes 10-15 minutes and could win one of three \$50 book vouchers! Click **here** to access the survey.

Please feel free to contact me for more information.

Kind Regards,

Shekinah Manning

shekinah.Manning.1@uni.masse.y.ac.nz

**Appendix E:**  
**Pearson's r correlation matrix of key variables in the current study**

	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>	<b>5</b>	<b>6</b>	<b>7</b>	<b>8</b>	<b>9</b>	<b>10</b>
<b>1. Vicarious traumatic exposure</b>	1	.083	.167**	.109*	.029	-.014	.156**	-.071	.040	.042
<b>2. Secondary traumatic stress</b>	.083	1	.145**	.068	-.304**	-.235**	-.125*	-.263**	-.337**	-.060
<b>3. Vicarious posttraumatic growth</b>	.167**	.145**	1	.170**	.116*	.042	.181**	.023	.282**	.282**
<b>4. Direct traumatic exposure</b>	.109*	.068	.170**	1	-.044	-.017	-.018	-.056	.101	.118*
<b>5. Total social support</b>	.029	-.304**	.116*	-.044	1	.719**	.689**	.656**	.423**	.089
<b>6. Supervisory support</b>	-.014	-.235**	.042	-.017	.719**	1	.281**	.166**	.411**	-.017
<b>7. Peer support</b>	.156**	-.125*	.181**	-.018	.689**	.281**	1	.188**	.214**	.133*
<b>8. Friends/family support</b>	-.071	-.263**	.023	-.056	.656**	.166**	.188**	1	.237**	.074
<b>9. Self-care</b>	.040	-.337**	.282**	.101	.423**	.411**	.214**	.237**	1	.275**
<b>10. Humour</b>	.042	-.060	.282**	.118*	.089	-.017	.133*	.074	.275**	1

\*\*p < 0.01 level . \*p < 0.05