Secondary traumatic stress, vicarious posttraumatic growth, and coping among health professionals; A comparison study.

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The current study explores the relationship between coping strategies and psychological outcomes of vicarious traumatic exposure, as well as investigating inter-speciality differences between five distinct groups of health professionals. Results suggested that self-care and social support from friends and family negatively predicted secondary traumatic stress (STS), while humour, self-care and peer support positively predicted vicarious posttraumatic growth (VPTG). Social workers experienced the highest levels of STS and VPTG, while psychologists experienced 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

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 of vicarious traumatic exposure include vicarious posttraumatic growth (VPTG), positive changes to self-perception, interpersonal relationships, and one's philosophy of life (for a review of the VPTG literature see Manning-Jones, de Terte, & Stephens, 2015). The utilisation of coping strategies may be one factor that could affect the development of STS and VPTG, and the relationship between these constructs has not been studied in a New Zealand context. The current study aims to explore three commonly used coping strategies, social support, self-care and humour, and investigate how these coping strategies are related to psychological outcomes of vicarious traumatic exposure.

In addition, very 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 groups of 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, and their methods of coping. Differences in workplace culture, professional training, 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.

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). It is possible that coping strategies work in a two-fold manner following vicarious traumatic exposure. First, they may protect against symptoms of 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. It is important to understand the relationship between coping strategies and STS and VPTG among New Zealand health professionals as such information may be able to inform best practice guidelines regarding how health professionals can look after themselves following vicarious traumatic exposure, and what organisations can do to support their employees.

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. Thus, peers may be a particularly powerful form of social support.

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.

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). The relationship between humour and VPTG represents a current gap in the literature, and an area where further research is needed.

Inter-specialty differences

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 specialities (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 & Weintroub, 2008), while another reported no significant differences between doctors, nurses, or therapists (Shiri, Wexler, Alkalay, Meiner, & Kreitler, 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

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 current study has two major aims. First, it aims to explore the relationship between coping strategies and STS and VPTG. Specifically, social support, self-care, and humour were chosen as coping strategies of interest because they appear to be common adaptive coping strategies reported among a wide range of health professionals. It is hypothesised that social support, self-care and humour will negatively predict STS, and will positively predict VPTG. Second, the current study aims to compare differences between types of health professionals in regard to the extent that they use coping strategies frequently cited in the literature, and their levels of STS and VPTG. Because research comparing health professionals is limited and has yielded inconsistent results, the second part of this study is framed as an exploratory investigation of inter-speciality differences, and 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 years). On average participants had worked in their field for an average of 17.20 years, and spent 13.48 hours of their typical working week with trauma clients (see Table 3 for a breakdown of this information across professional groups).

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 of Mental Disorders (DSM-IV-TR; American Psychiatric Association, 2000) diagnostic criteria of Posttraumatic Stress Disorder. Therefore it measures symptoms of intrusion, avoidance, and hyperarousal. Participants were required to indicate the extent to which they agreed with each statement on a 5-point Likert scale, and possible scores ranged from 17 to 85. It has been suggested that scores up to 37 indicate nil to mild STS, scores between 38 and 43 indicate moderate STS, scores between 44 and 48 indicate high STS, and scores above 49 indicate severe levels of STS (Bride, 2007). 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, and scores can range from 0 to 105. It has been argued that scores below 60 indicate a low level of growth, scores between 60-79 indicate a moderate level of growth, and scores 80 or above indicate a high level of growth (Feder et al., 2008). 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 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. 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 for the total scale in the present study was =.87. Cronbach's alpha values for the three subscales in the current study were as follows; Supervisory Support= .92, Friend/Family Support= .90, Peer Support= .91.

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. Pearson's r correlation and stepwise regression analyses were used to investigate the relationship between coping strategies and STS and VPTG. 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 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. 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

Relationship between coping strategies and STS and VPTG

Table 1 displays the results of Pearson's r correlation analyses between coping strategies and participants' reported STSS and PTGI scores. 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, Friend/Family Support, and SCUQ scores (Table 1). 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 2. The total model explained 15% of the variance in STSS scores,

$F(2,362)= 31.74$, $p <.001$, 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 Friend/Family Support.

analysis was performed to assess whether those coping strategies significantly correlated with PTGI scores (see Table 1) 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 2. Overall, the predictor model

Table 1.

Pearson's r correlations between coping variables and STSS and PTGI scores

	STSS	PTGI
Total Support	-0.30**	0.12*
Peer Support	-0.16*	0.18**
Supervisory Support	-0.24**	0.04
Friend/Family Support	-0.26**	0.02
SCUQ	-0.34**	0.28**
HSQ	-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.

Table 2

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

Dependent variable		*b*	*t*	R^2 change	*p*
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.

A second stepwise regression

was able to explain 14% of the variance in participants' PTGI scores, $F(2,362)=$

18.95, p < .001, Adj R² = .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.

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. Females (M=11.71, SD=14.60) were found to score significantly higher than males (M=106.43, SD=13.87) on the SCUQ, t(99.46)= -2.25, p= 0.03. There were no significant differences between females and males on any of the other measured variables (all p values were greater than 0.05).

Inter-speciality differences

Participants' mean scores and standard deviations for key variables are displayed for each professional group in Table 3. 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 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.

A one-way MANOVA was used to assess whether differences between professional groups were significant. A significant multivariate effect for occupation was found, Wilks λ = .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 < .00. No significant main effects were found for HSQ scores or Friend/Family 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, d=0.48), and significantly higher PTGI scores than psychologists (p = .001, d=0.62) and doctors (p = .02, d=0.60). Regarding social support, significantly higher Total Support scores were reported by counsellors compared to doctors (p = .01, d=0.69). Counsellors (p < .001, d=1.40), psychologists (p < .001, d=1.11) and social workers (p < .001, d=0.82) reported significantly greater Supervisory Support than doctors; counsellors (p < .001, d=0.96) and psychologists (p = .001, d=0.64) reported

significantly greater Supervisory Support than nurses; and counsellors reported significantly higher Supervisory Support than social workers (p < .01, d=0.54). Regarding Peer Support, significantly higher scores were obtained by nurses compared to psychologists (p = 02, d=0.51). Concerning participants SCUQ scores, counsellors (p < .001, d=1.23), psychologists (p <.001, d=0.82) and social workers (p < .001, d=0.71) scored significantly higher than doctors; counsellors (p= .001, d=0.79) and psychologists scored significantly higher than nurses (p < .001, d=0.46); and counsellors scored significantly higher than social workers (p < .01, d=0.49). Nurses were found to have been working in their field for a significantly longer amount of time than psychologists (p < .001, d=0.83), counsellors (p =.001, d=0.64), and social workers (p < .01, d=0.60); and doctors had worked in their field for significantly more time than psychologists (p =.02, d=0.61). Social workers were exposed to significantly higher levels of vicarious traumatic exposure than doctors (p <.001, d=0.84), psychologists (p <.001, 0.92), and counsellors (p <.01, d=0.53); nurses were exposed to significantly higher levels of vicarious traumatic exposure than doctors (p <.01, d=0.69) and psychologists (p <.001, d=0.74); and counsellors were exposed to significantly higher levels of vicarious traumatic exposure than psychologists (p =.03, d=0.50).

Discussion

The current study had two major aims; a) to investigate the relationship between coping strategies and STS and VPTG, and b) to explore differences

Table 3

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)
Supervisory Support	13.02 (5.96)	15.76 (5.07)	18.75 (4.23)	17.64 (5.24)	20.16 (4.07)
Peer Support	16.07 (4.34)	18.11 (4.14)	15.78 (4.90)	17.19 (4.56)	16.32 (5.44)
Friend/Family Support	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.

among five separate professional groups; medical doctors, nurses, social workers, counsellors and psychologists. The results will be discussed around these two aims separately.

Aim one: To investigate the relationship between coping and STS and VPTG.

Social support. Overall social support ('Total Support') was found to be significantly positively correlated with VPTG, and significantly negatively correlated with STS. All three forms of social support (peer support, support from supervisors, and support from friends and family) were significantly correlated with STS. In addition, social support from friends and family was found to be a significant negative predictor of STS, accounting 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 found to be positively correlated with VPTG, and was also a significant positive predictor variable, 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. Catherall (1995) argued that peers offer a powerful form of social support through their ability to offer an objective perspective, help to correct distorted perceptions, provide a safe place for health professionals to express themselves, and provide useful resources. It may be that these are some of the characteristics of peer support that foster its association with VPTG. These results highlight that different forms of social support may be beneficial in different ways; 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.

Self-care. Self-care was negatively correlated with STS, and positively correlated with VPTG. Furthermore, 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. These results highlight the benefit of using self-care in daily life to enhance health professionals' wellbeing, and health professionals and their employing organisations are encouraged to consider how they can incorporate self-care into the workplace, for example promoting work-life balance and maintaining a healthy lifestyle.

Humour. In contrast with previous research (e.g., Schauben & Frazier, 1995), a negative correlation 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, humour was found to be correlated with higher levels of VPTG, and was a significant predictor variable 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).

Aim two: To explore differences among health professionals' reactions to, and ability to cope with, vicarious traumatic exposure.

STS and VPTG. 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, which was

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. It also highlights the fact that, just because a health professional is exhibiting signs of VPTG, it does not mean that they do not also require support for STS.

Coping strategies. 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 support from friends and family; the significant difference in overall perceived social support appeared to be driven by a perceived difference in supervisory support. This suggests that social support from supervisors 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 confidentially 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.

Limitations

There are several limitations to consider in the current study. First, the generalisability of the sample needs to be considered. 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, the current sample was largely female and identified as New Zealand European. Based on data from Statistics New Zealand (2015; personal communication, April 30 2014) and the Ministry of Health (2011, 2014), this is consistent with the wider population of health professionals in New Zealand. However, it is unknown whether the current sample is representative in terms of vicarious traumatic exposure, years of experience, or other professional characteristics; therefore, care should be taken when generalising results. 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. In addition, it should be noted that the current study was entirely cross-sectional in design, and therefore no inferences regarding causality can be made.

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. It may also be that the differences reported here are partly due to differences it the way that health professionals interpreted and responded to the measures included in the survey. For example, some professional groups may have had greater knowledge and preconceived ideas about the psychological effects of working with trauma survivors, and this may have impacted the way they responded to the measures. Future research could investigate whether the STSS and PTGI do in fact measure the same constructs across different professional groups.

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. Results suggest

that the use of self-care in one's personal and professional life, social support from friends and family, peer social support, and humour may be coping strategies health professionals can use to reduce the chance of STS and enhance the likelihood of VPTG.

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