

# A Preliminary Investigation of Vicarious Traumatization among Forensic Medical Examiners of Sexual Assault

Ms. Sarah Rostron<sup>1</sup>, Dr. Brett Furlonger<sup>2</sup>

<sup>1,2</sup> Faculty of Education

Monash University

Australia

## Abstract

Vicarious trauma (VT) is a major concern for those who work with victims of trauma, and Forensic medical examiners (FME) have been identified as a high-risk group for experiencing this condition. In this preliminary study, levels vicarious trauma, secondary traumatic stress, and burnout) were examined in 36 FME. The aims of the study were to 1) to examine the relationship between years of work as an FME and level of VT 2) identify whether working with child victims was more likely to lead to elevated levels of VT than working with adult victims 3) identify whether coping strategies would be related to age and years of experience and finally 4) that VT would have a negative impact on the personal and professional lives of FMEs. The results from four self-report instruments showed no significant relationship between VT and years working as an FME. FMEs who worked with children who had been sexually assaulted did not report increased levels of VT compared to those FMEs who only worked with adult victims and the coping strategies used by FMEs was only moderately related to their age and years of experience. However, participant interviews identified that VT had a negative impact on the personal and professional lives of FME. Implications for professional practice are discussed.

## Keywords

Forensic, medical, examiner, vicarious, traumatization, sexual, assault

## Introduction

Forensic medical examiners (FME) are trained health professionals such as doctors or nurses who provide an essential service by gathering evidence of sexual abuse and by treating any injuries sustained during the assault (Victorian Forensic Paediatric Medical Service, 2013). Such evidence may be used later in judicial proceedings and may include tissue samples, photographs, as well as details of the abuse and locations relevant to the assault (Williams, 2004).

As professionals who work with victims of sexual assault they are, at times, exposed to some of the cruellest and most horrific things that human beings can do (McAllister, 2003). Such experiences may activate responses in them that are analogous to those experienced by victims, a phenomenon termed vicarious traumatisation (Dunkley & Whelan, 2006). There is, however, likely to be a difference in their response depending on their level of exposure to traumatic material. For example, therapists and counsellors experience of working with victims and survivors of sexual assault is arguably more distal than that of forensic medical examiners (FME) who not only hear about sexual assaults, but also observe the proximal physical and emotional consequences of the assault.

While vicarious traumatisation (VT) is considered to be a normal response to caring for victims of trauma there are few studies that have examined the effects of VT on FMEs. As VT can have serious implications for those who work with trauma victims (McCann & Pearlman, 1990) examining the effects on a group at high risk for VT seems pertinent. Accordingly, the present study aimed to investigate the effect of vicarious traumatisation on forensic medical examiners of sexual assault. In what follows, vicarious traumatisation will be defined, the impact of trauma type will be outlined, factors that moderate the impact of VT will be articulated, and finally details of the current study will be presented.

Vicarious Traumatisation (VT) refers to the transformation within an individual as a result of engaging empathically with the traumatising experience of another and is a concept first introduced by McCann and Pearlman (1990) following their research investigating the psychological impact on helping professionals working with traumatised clients. Four broad symptom categories have been identified in the VT literature that have the potential to negatively impact an individual's daily personal

and professional functioning: intrusive imagery – reoccurring unwanted trauma-related thoughts and images; avoidance behaviours – in social and professional situations, as well as avoidance of details of trauma; issues with arousal – hypersensitivity to safety, aversion to emotional and physical intimacy; and changes to cognitive schemas – related to safety, trust, power, esteem, intimacy, independence and frame of reference (Bride & Figley, 2007; McCann & Pearlman, 1990; Osofsky, Putnam, & Lederman, 2008; Pryce, Shackelford, & Pryce, 2007).

More recently, a meta-synthesis of 20 published qualitative VT studies identified four common themes relating to the short and long-term impacts of working with traumatised clients (Cohen & Collens, 2012). The first two: emotional and somatic reactions to trauma work; coping with the emotional impact of trauma work are short-term impacts of trauma work while the third and fourth, the impact of the trauma work on schemas and behaviour and the process of schematic change and relating factors relate to longer-term changes in the individual (Cohen & Collens, 2012).

The current definition of VT is based on Constructivist Self-Development Theory (CSDT; McCann & Pearlman, 1990) in which an individual is seen to construct his or her own reality through the development of cognitive schemata, and that these are shaped by the individual's interactions with his or her environment. These cognitive schemas manifest as beliefs, assumptions and expectations which individuals use to interpret the self and their world. In relation to VT, a CDST approach to interpreting the effects of vicarious exposure to a client's traumatic experiences is that those experiences can, in turn, cause permanent changes to the helpers' cognitive schemas (McCann & Pearlman, 1990).

## The Impact of Trauma Type

Within the research literature on VT the type of trauma experienced by clients under investigation varies widely from natural disasters (Adams & Riggs, 2008) to acts of terrorism (Collins & Long, 2003), however, working with clients who have been sexually assaulted is continuously presented as an area highly likely to cause VT (Bloom, 2003). Indeed, a study by Cunningham (2003) compared the level of VT reported by social work clinicians working with survivors of sexual abuse and survivors of cancer and reported that those working with clients with histories of sexual assault had significantly more negative disruptions to their cognitive schemas,

suggesting that exposure to sexual assault increased the likelihood of developing VT.

From the research literature on VT it is clear, however, that when the survivor of sexual abuse is a child, the impact on the professional can be greater, probably due to the perceived innocence and vulnerability of children (Figley, 1995). Children, therefore, are seen to be dependent, developmentally immature and have been exposed to activities that they do not fully comprehend and to which they were unable to give informed consent (Tomison, 1995).

### Factors moderating the impact of VT

Previous research has indicated that factors inherent in the individual can attenuate the negative impact of exposure to traumatic material and potential development of VT symptoms. These include coping strategies such as adaptive practice style, flexible and reflective expectations in response to specific clients (Woolhouse, Brown, & Thind, 2012), and being able to positively reinterpret experiences (Mairean & Turliuc, 2013); having certain personality traits, specifically conscientiousness (Mairean & Turliuc, 2013); emotional intelligence (Zeidner, Hadar, Matthewa, & Roberts, 2013); experience with fieldwork (Michalopoulos & Aparicio, 2012), and self-care skills (Pistorius, Feinauer, Harper, Stahmann, & Miller, 2008). Professional environmental factors that can ameliorate the impact of VT are: positive co-worker relationships, teamwork (Pistorius et al., 2008; Woolhouse et al., 2012) and supervision (Furlonger & Taylor, 2013).

In summary, FMEs may experience trauma related symptoms as a result of working with traumatised individuals and this is potentially related to the length of time involved with victims of sexual assault, the type of clients with whom they work and their own coping strategies. Consequently, it was hypothesised that there would be a significant relationship between years working as an FME and reported levels of VT. It was also expected that those FMEs who worked with child victims would experience increased levels of VT compared to those FMEs who only worked with adult victims. It was also assumed that coping strategies used by FMEs would be related to their age and years of experience. Finally, it was predicted that VT would have a negative impact on the personal and professional lives of FMEs.

## Method

### Participants

Members of the forensic and medical sexual assault clinicians of Australia (FAMSACA) and the Victorian forensic paediatric medical service (VFPMS) were invited to participate in this study via emails. Of those contacted, 36 forensic medical examiners voluntarily completed an online survey by following a link provided within the email invitation. All were medical professionals, either doctors or nurses, with experience working with child and/or adult sexual assault victims. Of these, 31 were female (86.2%) and five were male (13.8%). Participants were between 32 and 65 years of age ( $M = 50.03$  years,  $SD = 9.53$ ). Experience working as a forensic medical examiner ranged from less than a year to 30 years ( $M = 10.97$ ,  $SD = 9.04$ ).

### Materials

Four self-report instruments commonly used in VT research were adapted to create an online survey using 'Qualtrics' online survey software ([www.qualtrics.com](http://www.qualtrics.com)). The instruments used were the: Trauma Attachment and Belief Scale (TABS; Pearlman, 2003); Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997); Trauma Symptoms Checklist-40 (TSC-40; Briere & Runtz, 1989), Coping Strategies Indicator (CSI; Amirkhan, 1990). A questionnaire was used to gather demographic information.

### Trauma Attachment and Belief Scale (TABS; Pearlman, 2003)

The TABS is an 84-item self-report measure of the long-term psychological impact of traumatic life experiences and focuses on the individual's relationship history. The scale assesses the impact of direct and indirect trauma on respondent's beliefs about themselves and their relationships with others. Internal consistency and test-retest reliabilities for the TABS Total score are good (.96 and .75, respectively). The subscales are also reliable, with a median internal consistency estimate of .79 (range = .67 to .87) and median test-retest reliability of .72 (range = .60 to .79). Five areas of psychological need are quantified within the scale: control, esteem, intimacy, safety and trust, producing a total score and ten subscale scores for each of these five areas as reported for the self and other (i.e. Self-Safety and Other-Safety), with higher scores indicating greater negative beliefs. The directions ask the respondent to rate, on a scale of 1 to 6 (1 = "Disagree strongly", 6 = "Agree

strongly”), the extent to which each statement matches his or her own beliefs. For example, for Self-Safety (item 54) “I feel threatened by others” and Self-Esteem (item 3) “I don’t feel like I deserve much”. Scores are converted into T-scores and percentile rankings for interpretation. For the purposes of the current study only the total TABS T-scores were used in analysis. An interpretive guide for scores obtained from the TABS is provided in **Table 1**.

**Impact of Events Scale-Revised (IES-R; Weiss & Marmar, 1997)**

The IES-R is a 22 item self-report questionnaire designed to measure a participant’s distress in response to “stressful material related by trauma clients” during the previous seven days (Weiss & Marmar, 1997). High levels of internal consistency have been previously reported (Intrusion: Cronbach’s alpha = .87 – .94, Avoidance: Cronbach’s alpha = .84 – .87, Hyperarousal: Cronbach’s alpha = .79 – .91, Creamer et al., 2003; Weiss & Marmar, 1997). Items correspond to 14 of the 17 symptoms of Post-Traumatic Stress Disorder (PTSD) as outlined by the Diagnostic and Statistical Manual – Fourth Edition (DSM-IV). Participants respond to the items using a 5-point Likert scale (0 = “not at all”, 5 = “extremely”) that allows a total score ranging between 0 and 88 to be calculated, as well as subscale scores of Intrusion, Avoidance, and Hyperarousal. Sample questions include: “Any reminder brought back feelings about it” (items 1) and “I had trouble staying asleep” (item 2).

**Trauma Symptoms Checklist-40 (TSC-40; Briere & Runtz, 1989)**

The TSC-40 is a 40 item self-report checklist that was specifically designed for research purposes and measures the trauma symptomology experienced by adult participants during the previous month. It is shorter than clinical measures of trauma symptoms, such as the Trauma Symptoms Inventory (Briere, 1995), and measures some symptoms of PTSD as well as other related trauma symptoms. Studies using the TSC-40 indicate that it is a relatively reliable measure (subscale alphas typically range from .66 to .77, with alphas for the full scale averaging between .89 and .91). The checklist provides a total score (ranging from 0 – 120) calculated from the responses for each item’s four point forced choice scale (0 = “Never”, 3 = “Often”) using word prompts such as “Headaches”, “Insomnia”, “Sexual Problems”. Six subscale scores: Anxiety, Depression, Dissociation, Sexual Abuse Trauma

**Table 1**  
Interpretation of TABS T-Score Ranges

T-score	Interpretive Range
< 29	Extremely Low
30 – 39	Very Low
40 – 44	Low Average
45 – 55	Average
56 – 59	High Average
60 – 69	Very High
> 70	Extremely High (Substantial Disruption)

Adapted from TABS Manual (Pearlman, 2003, p. 14)

Index (SATI), Sexual Problems, and Sleep Disturbance are available; however, only the total scores were used in analysis.

**Coping Strategies Indicator (CSI; Amirkhan, 1990)**

The CSI is a 33 item self-report measure of the coping mechanisms participants use when facing “problems or troubles in their lives” (Amirkhan, 1990). The measure was designed based on a factor-analytic investigation into the most common coping strategies employed by individuals when responding to stress. The first scale assessed Problem Solving, an instrumental approach involving the planning and implementation of steps to remediate the problem (e.g. “Brainstormed all possible solutions before deciding what to do”). The Seeking Social Support scale measured attempts at human contact, not necessarily for help in resolving the problem, but simply for the comfort such contact provides (e.g. “Confided your fears and worries to a friend or relative”). The last scale, avoidance, reflected tendencies to escape the problem, both by means of physical and psychological withdrawal (e.g. “Avoided being with people...” and “Buried yourself in a hobby...”). These scales tapped the “common denominators of coping”, strategies common to a wide diversity of people dealing with a broad range of problems. Cronbach’s alpha values for coefficient indicated high internal reliability for all CSI scales: .928 for Seeking Support, .894 for Problem Solving and .839 for Avoidance.

**Demographic Questionnaire**

The demographic questionnaire included items relating to the participants’ age, gender, years



of experience, sexual assault caseload type (child sexual abuse and/or adult sexual assault) and frequency (how often participants saw such cases on average), as well as whether participants had presented their medical findings in court and how often.

## Procedure

Ethics approval from a University Human Research Ethics Committee was granted prior to contacting relevant organisations who employed FMEs. Following their consent, a template recruitment email, including a link to the online questionnaire, was sent to administrators for dissemination among their members. This method ensured participant anonymity, as online survey responses were not identifiable through qualtrics.com. The online questionnaire took approximately 30 to 45 minutes for participants to complete and, at the conclusion of the questionnaire, participants were invited to participate in a semi-structured telephone interview. Interested participants were directed to email the researcher to arrange an interview at their convenience.

## Data analysis

Data collected by the Qualtrics online survey was downloaded into Microsoft Excel for initial screening and the IBM Statistic Package for the Social Sciences (IBM SPSS Statistics 20) for quantitative analysis. For the TABS questionnaire component, any missing values were replaced by the median response value of the respective item, as directed by the TABS manual (Pearlman, 2003). Median scores were similarly used to substitute for missing values on the IES-R. No missing values were found within the CSI or TSC-40 data.

## Qualitative Interviews

### Participants

Of the 36 participants who completed the online questionnaire, three expressed their desire to be involved in an interview. All three interview participants were female, were trained as medical doctors, and indicated they had children. All three participants reported having worked with both child and adult sexual assault victims, although at the time of interviewing only one of the three was working with child sexual abuse victims, the other two seeing adult cases only.

### Procedure

Once the participants made initial expressions of interest, a suitable time to conduct one-on-

one semi-structured interview was arranged. All interviews were conducted during business hours, taking between approximately 20 and 45 minutes to complete. Thematic analysis was used to analyse the finalised transcripts as this is an accessible and flexible approach to analysing qualitative data (Braun & Clarke, 2006).

In pursuit of attaining reliable and valid qualitative data the concept of credibility, transferability, and confirmability were adopted. To address credibility, the focus group members were given sufficient time during which they were able to express and expand on their views. As participants they were given the opportunity to check the authenticity of their statements and their comments served as a check on the viability of the researcher's interpretation. Allowing members to verify their statements allowed the participants to fill in any gaps the researcher may have missed to check for accuracy thus improving trust which was seen by the researcher as an important aspect of the member check process. Confirmability was achieved through auditing of the data by independent researchers experienced with qualitative methods who followed the procedures outlined by the primary researcher attempting to understand how and why decisions were made.

## Interview Schedule

Interviews were conducted using a semi-structured interview style guided by four broad questions referring to the impact of sexual assault casework on the professional and personal lives of the participants. The questions were:

- i. How has working on sexual assault cases affected you, if at all?
- ii. How has working on child sexual assault cases affected you, if at all?
- iii. Have you found this work has affected your professional life?
- iv. Have you found this work has affected your personal life?

## Results

The data from TABS T-scores indicated that the participants' reported scores ranging from 21, indicating Extremely Low levels of trauma symptoms, to 60, indicating Very High levels of trauma symptoms (Pearlman, 2003), however, overall as a group they had Average levels of

trauma related symptoms ( $M = 44.15$ ,  $SD = 8.89$ ). The participants' scores on the IES-R suggest the impact of the event they chose to report had a minimal effect ( $M = 6.9$ ,  $SD = 7.83$ ), meaning they most often selected Not at all and A little bit when responding to the physical and psychological difficulties listed in the IES-R. The scores obtained from the TSC-40 ( $M = 17.37$ ,  $SD = 11.83$ ), indicated low levels of trauma symptoms among the participants. Similarly, participants varied in the coping strategies they employed as measured by the three subscale scores provided by the CSI (Problem Solving (PS), Social Support (SS), and Avoidance). Problem Solving strategies were employed most commonly by the participants when coping with life stress, ( $M = 27.87$ ,  $SD = 4.5$ ), followed by Social Support ( $M = 22.26$ ,  $SD = 4.74$ ) and Avoidance strategies ( $M = 17.10$ ,  $SD = 4.32$ ).

**Summary of research hypothesis one:** The hypothesis that there would be a significant relationship between years working as an FME and reported levels of VT was not supported. While there was a moderate positive correlation between years of experience and VT scores from the TSC-40, the relationship was not significant ( $r = .31$ ,  $p = .11$ ). See **Table 2** for a summary of correlations.

**Summary of research hypothesis two:** The expectation that those FMEs who worked with children who had been sexually assaulted would result in increased levels of VT compared to those FMEs who only worked with adult victims was not met. To compare the VT scores of participants who had worked with child victims of sexual assault (CSA) with those who had only worked with adult victims of sexual assault (ASA)

independent-sample t-tests were conducted. There was no significant difference between TABS scores for CSA ( $N = 17$ ,  $M = 45.24$ ,  $SD = 6.70$ ) and ASA ( $N = 17$ ,  $M = 43.1$ ,  $SD = 10.74$ ;  $t(32) = .71$ ,  $p = .10$ ). Similarly, when scores on the IES-R were compared between CSA ( $N = 16$ ,  $M = 7.94$ ,  $SD = 9.57$ ) and ASA ( $N = 15$ ,  $M = 5.80$ ,  $SD = 5.56$ ), no significant difference was found ( $t(32) = 0.71$ ,  $p = .10$ ). Again, when the TSC-40 scores of those who worked with CSA ( $N = 15$ ,  $M = 20.27$ ,  $SD = 12.91$ ) and ASA-only ( $N = 15$ ,  $M = 14.47$ ,  $SD = 10.28$ ) were compared, no significant difference was found ( $t(28) = 1.36$ ,  $p = .46$ ).

**Summary of research hypothesis three:** The assumption that the coping strategies that forensic medical examiners would use would be related to their age was partially supported. A moderate negative correlation was found between participants age and CSI Social Support,  $r = -.41$ ,  $p < .05$ , with older participants reporting less reliance on social support as a coping mechanism. A moderate positive correlation was found (see table 2) between age and CSI Avoidance,  $r = 0.38$ ,  $p < .05$ , with older participants reporting more avoidance-based coping strategies. No significant relationships were found between age and CSI Problem Solving or between years working as a medical examiner and CSI scale scores.

### Qualitative Interview Results

Once all interviews were completed and transcribed inspection of the interview data was undertaken. Using the thematic analysis articulated by Bruan and Clarke (2006) two overall themes were identified within the data relating to vicarious traumatising. Symptoms of VT and their affects were condensed into:

**Table 2**

Correlations for Demographic Data and Assessment Instrument Scores

Variable	Age	Yrs Exp	TABS	CSI (PS)	CSI (SS)	CSI (Avoid)	IES-R	TSC-40
Age		.57**	-.02	-.10	-.405*	.38*	.04	.036
Years of Experience (Yrs Exp)			.21	.07	-.16	.26	.07	.31
TABS				-.18	-.20	.47**	.42*	.49**
CSI (PS)					.52**	-.23	-.21	-.36
CSI (SS)						-.10	-.01	-.13
CSI (Avoid)							.41*	.43
IES-R								.59**
TSC-40								

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

“VT Symptoms related to the Interviewees Personal Life” and “VT Symptoms related to the Interviewees Professional Lives”. These themes are detailed in the subsequent sections.

**Summary of research hypothesis four:** The prediction that VT would have a negative impact on the personal and professional lives of FMEs was supported. Despite being employed in different positions and different settings all three participants reported that symptoms of VT had negatively impacted their personal and professional lives.

### Symptoms related to personal lives

Participant One discussed strong emotional and somatic symptoms of VT stating,

*“I’d get given a new case and just feel so sick and go in the bathroom and vomit” as well as “I think I was depressed, sad, tearful... as well as the somatic symptoms”.*

These statements were specifically related to the interviewees past work with child sexual abuse. The interviewee mentioned she had since changed role and was now working in a more varied medical environment, and that this, along with seeking professional help, had improved her wellbeing,

*“it affected me a lot... physically and psychologically, and I had to actually leave that work... there was such an effect”.*

Participant Two spoke predominantly about safety in relation to the self and family, which was interpreted as a change to cognitive schemas of safety and trust. Furthermore, the interviewee described the emotional impact of certain cases. Participant two discussed the significant impact cases had when the interviewee was able to relate to the adults’ or child’s circumstances:

*Relating to adult sexual assault: “I could relate to it, I could have done exactly the same thing [and] thought I was fine” (speaking about a woman being assaulted while walking home from a pub) and “I have a big thing at the moment about taxi drivers... being by yourself in a taxi, especially when you’re drunk”*

*Relating to child sexual abuse: “If you see a*

*child like your child that something’s happened to, that could happen to your child, that’s made a difference” and “you think ‘Oh my god, what can I do to make sure that doesn’t happen to my [child]?’”*

Relating to changes to cognitive schemas of safety and trust, participant two acknowledged that work had influenced her parenting practices,

*“I’m a bit more suspicious... and more protective, thinking about things with my children that other parents might not”. She also commented that the knowledge of sexual assault and abuse in the community has “skewed” their view of society and that they “feel guilty for not trusting people, but you just don’t know”.*

Concerning VT related to emotional reactions, participant two specifically described their emotional response to one case in which they were required to be an expert witness in court, stating,

*“I was reading this stuff and I knew [there had] been abuse for five years but I didn’t know the details... and I just had tears streaming down my face”.*

Participant Three commented on the impact the role had had on her personal life by way of intrusive thoughts. This was a noticeably difficult topic for the interviewee to discuss as the thoughts particularly related to details of adult sexual assault, with the interviewee stating,

*“thoughts intrude into my own sex life... something that a patient has said to me”.*

Participant Two also described the impact the job has on sleep as a

*“very significant issue”, and stating that as a result “occasionally I think I’m not driving safely”.*

Interestingly, two of the three participants made comments during their interviews that suggested being more involved, and knowing more information about cases, was not necessarily beneficial:

*Participant One: “So I can deal with that*

*[current caseload]. I think maybe because I don't have to get so involved, I just do an initial assessment and then hand them on to someone else."*

*Participant Two: "And I realized how much we don't know, and we don't need to, and if we did know in that detail it would be a lot harder"*

*Participant Three did express, however, "I think if I was doing child sexual assault all of the time it would affect me more".*

While all three participants described different VT symptoms resulting from their roles as medical examiners, all expressed that these symptoms had had significant negative impacts on their personal lives.

### Symptoms related to professional lives

The professional lives of all three participants had been negatively affected by symptoms of VT. Participant One strongly commented a number of times, that they left their job because of the emotional and psychological impacts of the work.

*"...it's a horrifically traumatic job" "I got angry at my boss because I didn't think he gave me support... and he didn't want me to stop working, because it is really hard to get people to do that work."*

Participant Two, no longer worked with child or adult sexual assault, and although originally explaining this employment change as a result of logistics and experience, eventually mentioned issues about having been emotionally and psychologically affected as a result of,

*"identifying with the victim" as "another reason for not doing the work".*

Participant Three discussed the recruitment of new medical examiners of child and adult sexual assault, and concerns relating to exposure to details of sexual assault and also mentioned that medical registrars are often roster on to do sexual assault work,

*"So when I'm recruiting very young doctors... I'm a little concerned about them... being face to face with sexual assault." "you don't know how this could be deleterious to them."*

As a result of working as a medical examiner and the knowledge of child and adult assault in

the community, Participant Two was particularly concerned with public safety and promoting protective behaviours for both children and adults, stating:

*"Another thing I have learnt is that [child] protective behaviours are really badly taught." (protecting children), "We need to target our education more about reducing vulnerability" and "we can't change that there are people out there, offenders out there... so we need to plan, you know, and plan to be safe." (protecting adults)*

Participant Three also mentioned her reasons for working in child sexual abuse related to advocacy, stating,

*"I've got to stop being overwhelmed by all the work so I can get on to writing these letters to courts and things because I am very concerned about how children are treated in courts".*

Additionally, Participant Three referred to potential professional conflict as a result of VT, stating,

*"I want to raise the quality of the service [which] has sometimes brought me into conflict with other doctors"... "because a child can't get themselves out of a dangerous situation".*

### Discussion

The objectives of this study were to examine levels of vicarious traumatisation experienced by forensic medical examiners to explore the relationship between years working as a forensic medical examiner and VT, to investigate the coping strategies used by FMEs and if it was related to their age and years of experience and whether those FMEs who worked with children would report higher levels of VT than those who only worked with adults. Open-ended questions also provided further information, which allowed for a more in-depth understanding of the experience of occupational VT and its effect on FMEs personal and professional lives.

The lack of a relationship between VT and years working as an FME was a finding in line with that of Baird and Jenkins (2003) and Michalopoulos and Aparicio (2012) who found that VT decreased with years of experience. Such a finding may be understood by acknowledging that some participants may have undergone a type of



transformation following the experience of working with victims of trauma (Van der Kolk, 2014). Such experiences may be similar to post-traumatic growth (PTG), a theory which holds that people, following adversity, can see positive growth afterwards post-traumatic growth (Collier, 2016). However, the fact that Bober and Regehr (2006) found that more experience with traumatised clients was associated with increased VT symptom in counsellors suggests that not all find a sense of personal growth as a result of working with traumatized patients. Indeed, preliminary research has indicated that only one-half to two thirds of victims show post-traumatic growth following incidents of trauma (Tedeschi, Calhoun & Engdahl, 2001; Tedeschi & McNally, 2011). It is not clear yet what percentage of those who work with traumatized patients and experience trauma indirectly will achieve post-traumatic growth (PTG).

The fact that those FMEs who worked with children who had been sexually assaulted did not report increased levels of VT compared to those FMEs who only worked with adult victims was somewhat surprising. What has been termed the ripple effect goes some way to providing an explanation for the profound effects of the victim's trauma on families, friends and those professionals who support victims of trauma. However, the participants surveyed in the present study may have had such sufficient levels of experience to have developed sufficient a level of resilience to attenuate the effects of VT, regardless of the age of the victim. Conversely, as the effects of VT are cumulative less experienced counsellors may not have developed recognizable symptoms at the time of assessment (Morrison, Quadara, & Boyd, 2007).

The finding that coping strategies used by FMEs was moderately related to their age and years of experience suggested that older FMEs were less likely to rely on social support as a coping strategy. Examples of social support coping strategies included in the CSI were: "Confided your fears and worries to a friend or relative" and "Went to someone (friend or professional) in order to help you feel better". This finding is consistent with findings in child protection social workers whose age was found to be negatively associated with confiding in others about "work-related trauma effects" both socially and professionally (Horwitz, 2006). Interestingly, research by Zeidner and colleagues (2013) suggested health-care professionals who employ coping strategies related more to avoidance and less so to problem solving, were more vulnerable

to compassion fatigue (a concept associated with VT). While relationships were not found between age and symptoms of VT in the current study, a moderate positive correlation was found between coping strategies of avoidance (CSI Avoid) and symptoms of VT, indicating participants more likely to use avoidance strategies were also more likely to report symptoms of VT. In this instance experience may also have played a role with older more experienced FMEs becoming self-reliant over time. However, an alternative explanation for not seeking social support could be that FMEs experience feelings of anxiety, shame or incompetence in relation to their trauma work which, in turn, led to the avoidance of support. Termed "impression management" this behaviour is related to an individual's perceived need to be regarded by their colleagues as highly competent and an effective mental health professional and in no need of support (Ladany et al., 1996).

The qualitative data provided by all three interviewees supported the prediction that VT would have a negative impact on the personal and professional lives of FMEs and demonstrated the value of a qualitative component in the research inquiry. While the specific symptoms of VT reported by the FMEs varied, all interviewees expressed the negative impacts of these symptoms on their personal and professional lives, a fact not evident in the survey methodology.

Symptoms included: somatic symptoms (vomiting and difficulty sleeping), psychological symptoms (feeling depressed and sad, anger, frustration), intrusive thoughts, and changes to cognitive schemas (related to the safety of the individual, their family, and members of the community, as well as trust of others). Impacts on the personal lives of interviewees included: depression, details of sexual assault intruding into the individual's sex life, problems with sleep, tiredness and the impact on safe driving, changes to parenting practices, and behaviour changes related to increased safety precautions. These findings are consistent with the research of Maier (2011), in which American Sexual Assault Nurse Examiners (a role is similar to that of FME) reported "crying", "looking at the world differently" and "having difficulty sleeping". Research from Pistorius and colleagues (2008) into the experiences of trauma-therapists is congruent with the current findings related to intrusive thoughts and sexual intimacy, with the authors stating "therapists talked about images or thoughts coming into their minds". The therapists interviewed also indicated that working with sexually abused children impacted relationships with their own children, in turn, they

felt over-protective and hypervigilant about their children and were often unrealistically fearful. Such behaviour was similar to the feelings and parenting practices discussed by Interviewee three in the present study. Research into child welfare workers has also found almost identical reports related to symptoms of VT impacting parenting practices influencing the workers trust of others and protective behaviours (Jankoski, 2010). The VT symptoms discussed by interviewees are consistent with the main themes outlined by Cohen and Collens (2012) in their meta-synthesis of qualitative VT research, suggesting VT experienced by FMEs is in line with that of other helping professionals.

Interviewees One and Two expressed that the more knowledge they had of the client's trauma experience the more difficult they found it to remain detached, and the greater the impact of VT symptoms. This sentiment is consistent with early research by Figley (1995) that suggested health care workers who empathised with traumatised clients were at an increased risk of developing VT symptoms.

Examining the qualitative data demonstrates its importance to the present study. For example, all three interviewee participants reported symptoms of VT that had significantly impacted their lives, a finding that stands in contrast to the quantitative statistics that suggested that overall the FME experienced minimal trauma related symptoms as measured by the TABS, IES-R and TSC-40. Thus, the advantage of collecting data and examining it from the individual level revealed important impacts of VT not evident when the data was grouped, followed by tests analysis using tests of difference.

### Limitations

Non-response bias may limit the conclusions of this study. FME doctors and nurses who chose not to respond to the survey may differ than those who choose to respond. In a similar way, those individuals who responded to the open-ended qualitative questions may have had different experiences and motivations to provide details on those questions. Doctors and nurses of any background can choose to train as FMEs, suggesting there are personality characteristics of those who choose to do this particular job that may be unique (e.g. strong views towards sexual assault victims and perpetrators). In addition, it is possible that those who are particularly distressed by FME work may leave the job early leaving a sample that appears healthier. There may also be differences between those that

chose to access the survey and those that did not (e.g. those who were particularly satisfied or particularly unsatisfied with their work or the organization for which they worked). The small sample size also limits the conclusions. After removing missing data, our sample size may have been too small, and thus future studies should aim for larger sample sizes in order to have higher confidence in results. Future research could potentially track levels of VT in larger groups of new FME recruits longitudinally, and explore factors relating to FME staff retention and attrition, the question being "Why do FMEs choose to stay or choose to leave the role?" Other variables that were not measured such as caseload numbers, cultural characteristics of a community and level of supervision should be controlled for in future studies. Finally, a comparison group of doctors and nurses who do not care for sexual violence survivors would help to clarify the impact of this type of work.

### Professional implications

Our results indicated that some FME experienced considerable stress as a result of their work. The implications for practice are many. Firstly, work related stress has repercussions for the quality of patient care. Forensic medical examiners, who feel less emotionally connected to patients, who also feel detached from their patient's suffering are, in turn, likely providing compromised care to their patients. Training regarding the signs and symptoms of occupational stressors should also be provided for both FMEs doctors and nurses. It may be useful to educate FMEs-in-training about how to recognize early signs and symptoms of vicarious trauma, secondary traumatic stress, and burnout, so that a strategy can be developed before a FME feels it necessary to leave work. Participants in the present study spoke to the importance of reflecting on difficult cases, and many described struggling with work-life balance as well as a separation between work life and home life; suggesting that organizations should include psychoeducation and information about these strategies into training.

Professional and organizational strategies may involve supportive supervision, opportunities for professional development and further training, stress-management training, providing opportunities for debriefing, and more control over shift-work. In this study, participants spoke about the importance of debriefing with supervisors as well as peers, but felt that there was neither time nor support for this. Thus, it is important to consider the usefulness of time set

aside for FMEs to speak about difficult cases. Indeed, monthly team meetings, where FMEs can discuss certain cases may be important from a competency perspective; by allowing FMEs to share challenging cases and provide education and training to their peers. Personal strategies may include those that involve self-care (e.g. sleep hygiene, exercise, quality diet), mindfulness, maintaining a work-life balance, engaging in calming activities, and seeking support from family and friends.

## Conclusions

Forensic medical examiners are in a high-risk group for experiencing vicarious traumatised although the FME in the present study showed few signs of VT when asked to complete questionnaires. However, in depth questioning revealed a different experience of working as a FME, at least for FME nurses. In this instance, it was clear that VT had negatively intruded into their personal and professional lives demonstrating a need for further investigations to unpack the effects of working as an FME in the area of traumatic sexual assaults.

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