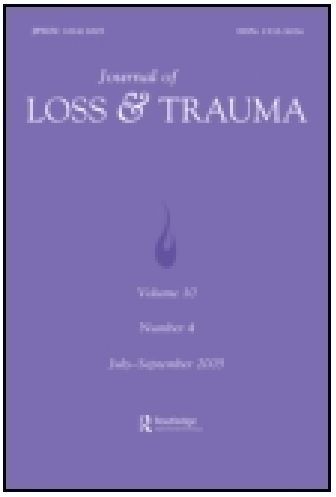

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Predictors of Vicarious Trauma Beliefs Among Medical Staff

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The purpose of this research was to investigate personality differences in vicarious trauma beliefs and to explore the interaction effects of personality and coping with these beliefs. A total of 131 medical staff completed measures of personality, coping, and trauma beliefs. The regression analysis emphasized the importance of personality traits (extraversion, neuroticism, and conscientiousness) as predictors of dysfunctional beliefs. The results confirm the hypotheses that vicarious traumatization is determined by individual variables and that positive reinterpretation can buffer the impact of work environment when it comes to personal well-being.

KEYWORDS personality, coping, vicarious trauma beliefs

It is commonly accepted that we are all exposed to at least one potentially traumatic event in the course of our lives. However, those who work in the helping professions are more prone to this type of situation because offering support and assistance to those coping with pain can significantly reduce the emotional energy and coping resources of professionals (Adams & Riggs, 2008).

Psychological trauma can result from direct exposure to a traumatic event (whether natural or man-made) or from indirect or *secondary* exposure, for instance, while assisting traumatized persons. In other words, the pathological

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mental condition associated with a trauma can therefore be transmitted in a vicarious way from the victim to the rescue worker (Argentero & Setti, 2011; Hatcher, Bride, King, & Catrett, 2011). The purpose of this study was to investigate the incidence of secondary traumatisation from a group of medical staff and to explore some of the main predictors of vicarious trauma in order to identify the individual factors that are able to improve the state of well-being of those working in the helping professions.

To describe the unique effect that work with traumatized clients has on trauma therapists, McCann and Pearlman (1990) proposed the term *vicarious trauma*. From their point of view, vicarious trauma describes the process and mechanism by which the inner experience of the therapist is profoundly and permanently changed through bonding with the client's traumatic experiences. Through repeated exposures to clients' traumas, professionals may experience negative effects in core aspects of themselves, including their perception of themselves, others, and the world (Trippany, White Kress, & Wilcoxon, 2004). Unfortunately, since the introduction of the term vicarious trauma, development in this area has been limited by uncertainty regarding key concepts and a focus on selective groups of trauma therapists. In particular, research on medical staff has been neglected. There are a large number of medical services that include working in difficult situations and exposure to others' trauma. Hospital emergency room health care workers routinely witness life-threatening situations experienced by their patients and have to deal with physical and verbal aggression directed toward them. Thus, these workers have higher levels of exposure than people in the general population to events that are implicated in the development of trauma-induced anxiety. Despite that exposure, few studies have examined vicarious trauma in this population.

The origins of the construct of vicarious trauma are rooted within constructivist self-development theory (CSDT) (McCann & Pearlman, 1990). Applied to trauma workers, the theory identifies specific ways in which working with trauma clients can disrupt the individual's imagery system of memory as well as his or her schema about the self and others (McCann & Pearlman, 1993). According to the theory, people construct their reality through the development of cognitive structures, and these cognitions are then used to interpret events (McCann & Pearlman, 1990). McCann and Pearlman (1990) indicated that trauma can disrupt a person's cognitive schemas in one or more of five fundamental need areas: safety, trust/dependency, esteem, control, and intimacy. In other words, vicarious traumatization occurs when a person's beliefs about safety, trust, control, esteem, and intimacy become increasingly negative as a result of being exposed to a client's traumatic experiences. The disruptions of the individual's cognitive schemas can create suspicion, doubts about his or her ability to judge and intervene effectively with clients, feelings of inadequacy, withdrawal, avoidance from others, or excessive control (Trippany et al., 2004). The impact of vicarious trauma upon practitioners can

create ethical concerns because vicarious trauma increases the potential for clinical error, increases anger toward clients, and increases the risk of compromising therapeutic boundaries (Trippany et al., 2004).

THE ROLE OF PERSONALITY TRAITS

An area that has received some attention is the variety of factors that are thought to affect vicarious traumatization. The literature has confirmed the presence of vicarious trauma but also highlighted that not everyone who is vicariously exposed to a traumatic event develops symptoms (Lerias & Byrne, 2003). Therefore, there are variables that, if presented, may increase an individual's likelihood of experiencing vicarious traumatization.

McCann and Pearlman (1990) explained that specific areas of disruption will differ for different individuals depending on which area is more or less salient for them as a reflection of their unique life experiences. The nature of the traumatic event, organizational factors, personality dispositions, and coping variables have commonly been investigated as predictors or correlates of posttrauma outcomes (McCammon, 1996).

In addition to its focus on dysfunctional schemas, CSDT emphasizes the importance of ego resources (resources that allow one to connect with others) in understanding vicarious traumatization (McCann & Pearlman, 1990). As for personal resources, we choose to study personality traits, which can protect individuals or can predispose them to vicarious trauma. Costa and McCrae's five-factor model of personality (FFM) is a comprehensive taxonomy of higher order trait characteristics. The FFM is comprised of neuroticism (N), extraversion (E), openness (O), agreeableness (A), and conscientiousness (C) (Costa & McCrae, 1992). Each of these traits accounts for significant variance in scores when investigating positive or negative outcomes following a traumatic event (Tedeschi & Calhoun, 1996). A positive relationship has been demonstrated between extraversion, openness, and conscientiousness and positive posttrauma perceptions (Tedeschi & Calhoun, 1996). Also, it appears that agreeable individuals are less likely to perceive negative changes as a result of experiencing a traumatic event. Neuroticism is the most pervasive dimension of personality in terms of a pathogenic posttrauma outcome correlation (Watson & Hubbard, 1996).

COPING AS A MODERATOR IN RELATIONS BETWEEN PERSONALITY AND DYSFUNCTIONAL BELIEFS

An important area of research has focused on ways to ameliorate the negative effects of traumatic events. Coping is a process by which an individual manages the demands and emotions generated by a situation that is seen to

be stressful (Lazarus, 1999). The process involves appraisals as to whether a situation is a threat, a challenge, or a loss, and perceptions of what can be done to minimize the threat. Following the initial appraisal of the situation, coping strategies have been implemented (Lazarus & Folkman, 1984). In particular, studies have examined the coping strategies of those who work with trauma clients, because different people cope in different ways, and some ways of coping are more effective in helping people to adjust to difficult situations and maintain their emotional well-being.

Coping is a transactional process between the person and his or her environment (Folkman & Lazarus, 1985). Personality dispositions are important determinants of coping because they may predispose people to use certain coping strategies (Suls, David, & Harvey, 1996). And these strategies determine the way we evaluate stressful situations and predict direct attempts to change stressful circumstances or avoid maladaptive cognitive distortions. Although not conclusive, studies (Pearlman & MacIan, 1995; Schauben & Frazier, 1995; Steed & Downing, 1998) have found that coping strategies can influence levels of vicarious traumatization and reduce the associated risks. These studies demonstrate the importance of identifying active coping strategies when it comes to dealing with vicarious traumatization.

Some evidence attests to relations between personality and coping (DeLongis & Holtzman, 2005; Lee-Baggley, Preece, & DeLongis, 2005). Coping has also been described as "personality in action under stress" (Bolger, 1990, p. 525), and this process is influenced by both situation-specific elements and stable dispositional traits (Folkman & Moskowitz, 2004). Watson and Hubbard (1996) reviewed a sizeable literature that supports this notion. Also, a more recent meta-analysis by Connor-Smith and Flachsbart (2007) focused on the relationship between personality and coping and showed that extraversion and conscientiousness predict problem-focused coping styles, and neuroticism predicts maladaptive coping styles.

Coping has been examined in relation to other personality variables, such as self-efficacy (Schwarzer, Böhmer, Luszczynska, Mohamed, & Knoll, 2005), hardiness (Kobasa, 1982), and self-esteem (Guinn & Vincent, 2002). We focused on one model of personality that provides a useful context for assessing individual differences in coping strategy use: the five-factor model, a broad-based taxonomy of personality dimensions (Costa & McCrae, 1985).

THE CURRENT STUDY

The purpose of this study was to investigate vicarious trauma in the context of treating human pain. Through the nature of their work, medical staff have been typically identified as being indirectly and directly exposed to

traumatic events more frequently than would normally occur in the general population. They work to rescue individuals and, although they learn to deal with many stressful events, some of them can have lasting effects. Physicians and nurses are exposed to many serious events in the workplace that occur unexpectedly and cannot be controlled. The term vicarious trauma is used to describe events that these persons can encounter during their work and the negative impact they can have. Changes in cognitive schemas are an indicator of vicarious trauma and consist of disruptions in beliefs about the self and others in the five areas of safety, intimacy, trust, control, and esteem.

According to McCann and Pearlman (1990), a person's level of vulnerability to vicarious traumatization could depend on the extent to which he or she is able to engage in a process of integrating and transforming the traumatic experiences. Presumably, such a process would diminish the disruption of vicarious traumatization. For this reason, we decided to study the role of coping in the development of dysfunctional beliefs. Also, although not everyone experiences vicarious trauma in the same way, personality differences were considered.

Based on previous research, we expected that (a) there would be differences between emergency and non-emergency staff concerning the presence of vicarious trauma and (b) the interactions between personality traits and coping would predict participants' beliefs. As a moderating variable, coping can be considered a transactional process between individuals and posttrauma outcomes.

METHOD

Participants

The research took place in several hospitals in the city of Iasi, Romania. The participants in this study were 76 medical workers from the emergency and intensive care units. Also, we included in the study 70 participants from other departments of the hospitals. Participants who provided incomplete data were excluded from the analysis. The final sample of 131 participants consisted of 67.2% nurses, 25.2% physicians, and 7.6% resident physicians. Our sample was largely comprised of women (82.4%). Ages ranged from 24 to 65, with a mean age of 38.25 years ($SD = 10.11$). Participants had considerable experience in health care in general ($M = 12.24$ years, $SD = 11.17$). For some analyses, participants were divided into two groups: medical staff in the emergency section (63 participants; 48.1%) and medical staff from other sections (68 participants; 51.9%). All participants answered a set of questionnaires after signing a confidentiality contract.

Instruments

NEO five-factor inventory

Personality was assessed using the NEO Five-Factor Inventory (NEO-FFI; Costa & McCrae, 1992). The NEO-FFI is a 60-item self-report measure of the five major domains of personality: neuroticism, extraversion, openness, agreeableness, and conscientiousness. Participants were self-rated on a 5-point Likert scale ranging from strongly disagree to strongly agree. Neuroticism assesses general mental stability/instability and includes items focusing on anxiety, hostility, depression, and vulnerability. Extraversion involves gregariousness and positive emotions. Openness refers to fantasy and appreciating ideas. Agreeableness refers to trust, altruism, compliance, and tender-mindedness. Conscientiousness includes items related to competence, order, achievement striving, and self-discipline. Cronbach alphas for the current sample ranged between 0.67 and 0.73 for the five scales.

Coping orientations to the problems experienced scale

The Coping Orientations to the Problems Experienced Scale (COPE; Carver, Scheier, & Weintraub, 1989) is a theoretically based, 53-item self-report measure. Participants are instructed to report what they usually do when they are under stress. Respondents chose their answers on a 4-point scale from not at all (1) to a lot (4). The COPE scale consists of three main dimensions: (a) problem-focused coping (active coping, planning, suppression of competing activities, restraint coping, seeking social support for instrumental reasons), (b) emotion-focused coping (seeking social support for emotional reasons, positive reinterpretation, denial, acceptance, religion), and (c) dysfunctional coping (venting, behavioral disengagement, mental disengagement). Of the three main dimensions, we choose to study only two: problem-focused and emotion-focused coping. Tests were conducted for internal reliability (Cronbach alpha) for each of the 10 subscales. Of the 10 subscales, five (instrumental support, emotional support, positive reinterpretation, religion, and denial) had Cronbach alphas ranging between .70 and .76. The others five scales that did not form a reliable measure were not analyzed further.

Trauma attachment and belief scale

The Trauma Attachment and Belief Scale (TABS; Pearlman, 2003) is designed to assess the impact of directly and indirectly experienced trauma. The TABS has 84 items that are rated on a 6-point Likert scale (1 = disagree strongly, 6 = agree strongly). Negative items are reverse scored. In particular, it measures disruptions in beliefs related to five areas of need that are sensitive to the effects of trauma: safety, trust, esteem, intimacy, and control. Within each of these areas, separate sets of items tap into beliefs about

oneself and others, yielding subscale scores and a total score. For the purposes of the current study, the total score was used; higher scores represent greater disruption. Although the TABS was originally designed to measure the impact of trauma upon victims (Pearlman, 2003), some researchers have used the instrument to assess the impact of indirectly experienced trauma (Cunningham, 2003; Pearlman & MacIan, 1995; Schauben & Frazier, 1995; VanDeusen & Way, 2006). The Cronbach alpha for the current sample was .92.

Demographic variables

Demographic variables were collected via a questionnaire that covered age, gender, occupation, and work experience.

Procedure

Permission was obtained from the heads of the organizations, and informed consent was obtained from all of the participants. Participants were informed that their participation was voluntary, and then they were asked to complete a questionnaire battery on a confidential, take-home basis. Because their workload was very high, the participants completed the questionnaires at home. They were told that the purpose of the research was to obtain information about the way they think concerning various aspect of their life. In addition, they were asked to volunteer to complete the survey. They were also told that participation was not a requirement and that the information would be collected directly by the researchers, would be kept confidential, and would not become part of their evaluation. Participants completed all measures in the following (fixed) order: NEO-FFI, COPE, TABS, and demographic variables. The importance of answering truthfully was emphasized.

Hypotheses

Hypotheses for the study were as follows.

Hypothesis 1: There will be differences between emergency and non-emergency staff concerning the presence of vicarious trauma.

Hypothesis 2: The interactions between personality traits and coping will predict the participants' beliefs.

RESULTS

Means, standard deviations, and correlation coefficients for all scales are reported in Table 1.

TABLE 1 Descriptive Statistics and Correlations Between Variables.

	M	*SD*	1	2	3	4	5	6	7	8	9	10	11	12	13
1. TABS	2.48	1.06	—												
Demographic variables															
2. Age	38.25	10.11	−.19**	—											
3. Years of service	12.80	11.17	−.17*	.88**	—										
Personality															
4. Neuroticism	32.36	6.65	.38**	−.11	−.10	—									
5. Extraversion	40.41	5.56	−.23**	−.08	−.03	−.40**	—								
6. Openness	41.23	5.2	−.07	.20*	.19*	−.08	.35**	—							
7. Agreeableness	44.27	4.66	−.13	.23**	.24**	−.26**	.18*	.15	—						
8. Conscientiousness	48.82	5.65	−.20*	.03	.05	−.34**	.26**	.15	.34**	—					
Coping strategies															
9. Instrumental support	13.70	2.68	−.04	−.04	−.00	.12	.16	.24**	−.00	−.00	—				
10. Emotional support	12.73	2.95	−.02	−.11	−.08	.14	.22**	.22**	.01	−.04	.64**	—			
11. Positive reinterpretation	15.92	2.34	−.24**	.26**	.24**	−.29**	.36**	.27**	.35**	.33**	.16	.15	—		
12. Religion	9.37	2.83	.14	.18*	.12	.09	−.19*	−.03	.008	−.11	.04	.001	.001	—	
13. Denial	10.18	2.67	.08	.17*	.17*	.17*	−.01	.21*	.01	−.03	.19*	.29**	.19*	.16	—

Note. TABS = Trauma Attachment and Belief Scale.
*$p < .05$; **$p < .01$.

Hypothesis 1

A *t*-test analysis was conducted to examine the differences between medical staff who provide services in emergency situations and medical staff from other departments of the hospitals. The results revealed that there were statistically significant differences in the ratings of dysfunctional beliefs, $t(129) = 7.11$, $p < .001$, with higher scores among emergency workers ($M = 241.03$; non-emergency $M = 199.70$). These results confirm our first hypothesis. Emergency medical personnel experience a significantly higher level of dysfunctional beliefs in comparison to other professionals who do not systematically interact with victims of traumatic events. Further analyses were conducted using data from the entire sample.

Hypothesis 2

In order to examine potential predictors of dysfunctional beliefs, bivariate correlations (as shown in Table 1) were first examined with three sets of variables: demographic variables, personality traits, and coping strategies. A hierarchical multiple regression was then conducted, using only predictors that correlated significantly with the specific criterion variable. Demographic variables (age and years of practice) correlated significantly with higher disruptions in beliefs. Disrupted beliefs about the self and others were also positively related to neuroticism ($r = .8$) and negatively related to extraversion ($r = -.23$) and conscientiousness ($r = -.20$). Openness and agreeableness, however, were not significantly related to dysfunctional beliefs in our sample ($r = -.07$ and $r = -.13$, respectively).

Religion, denial, and instrumental and emotional support did not correlate significantly with dysfunctional beliefs and were therefore not used in regressions with this dependent variable. Higher use of positive reinterpretation correlated with lower disruptions in beliefs. We examined positive reinterpretation as a potential moderator when personality was associated with disruption in beliefs.

We conducted a hierarchical multiple regression analysis (Cohen, Cohen, West, & Aiken, 2003) of personality traits, positive reinterpretation, and vicarious trauma beliefs, with the Big Five traits main effects entered in the first step, positive reinterpretation's main effect in the second step, and the personality–positive reinterpretation interaction in the final step. Main and interaction effects were centered to minimize multicollinearity (Aiken & West, 1991). Individual variables within a given set were not interpreted unless the set as a whole was significant.

The results, which are summarized in Table 2, showed that neuroticism ($\beta = .31$, $p < .001$), extraversion ($\beta = -.28$, $p < .001$), and conscientiousness ($\beta = -.21$, $p = .005$) were significant predictors of vicarious trauma beliefs. In addition, positive reinterpretation was a significant predictor of vicarious

TABLE 2 Hierarchical Regression Models of Personality Traits and Positive Reinterpretation on Dysfunctional Beliefs.

Variables (outcome: TABS)	β	T	ΔR^2	ΔF
Step 1			.36**	25.92**
Neuroticism	.31**	3.96**		
Extraversion	−.28**	−3.73**		
Conscientiousness	−.21**	−2.86**		
Step 2			.39**	22.61**
Positive reinterpretation (PR)	−.21**	−2.87**		
Step 3			.40**	13.79**
Neuroticism * PR	−.001	−.013		
Extraversion * PR	.08	1.018		
Conscientiousness *PR	−.14*	−1.96*		

Note. $N = 111$. TABS = Trauma Attachment and Belief Scale.
*$p < .05$; **$p < .01$.

beliefs ($\beta = -.21$, $p = .005$). Standard multiple regression showed that personality traits accounted for 36% of the variance in dysfunctional beliefs, adjusted $R2 = .36$, $F(3, 130) = 25.92$, $p < .001$, while coping strategies accounted for 39% of the variance in dysfunctional beliefs, adjusted $R2 = .41$, $F(4, 130) = 22.61$, $p < .001$. Those participants who reported a higher level of neuroticism and a lower level of extraversion, conscientiousness, and positive reinterpretation were more likely to report higher levels of dysfunctional beliefs. We also found significant interactions between conscientiousness and positive reinterpretation when it came to predicting dysfunctional beliefs (Figure 1).

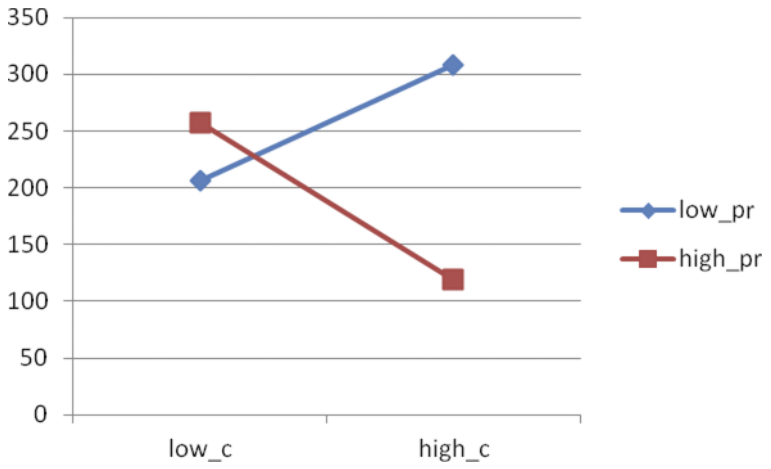

FIGURE 1 Vicarious trauma beliefs as a function of conscientiousness and positive reinterpretation. Simple effects were represented with conscientiousness and positive reinterpretation scores defined as at least +1 and −1 standard deviations from the mean, respectively. (Color figure available online.)

DISCUSSION

The results of our study suggest that personality could be a source of variation between individuals in dysfunctional beliefs. These relations largely supported the hypotheses posed. Also, these results replicate and extend findings from previous research. As in previous studies (e.g., Culver, McKinney, & Paradise, 2011; Miller, Flores, & Pitcher, 2010), our results support the claim that vicarious traumatization can lead to changes in cognitive beliefs/schemas. The highest levels of extraversion and conscientiousness predict a lower level of dysfunctional beliefs, whereas a higher level of neuroticism predicts a higher level of dysfunctional beliefs. Our data show that neuroticism is the strongest predictor of vicarious trauma, this result being in accordance with previous research (e.g., Watson & Hubbard, 1996).

In addition, our results reveal that positive reinterpretation interacted only with conscientiousness in predicting vicarious trauma. Specifically, participants with a high level of conscientiousness had higher scores on the dysfunctional beliefs scale when they reported a lower level of positive reinterpretation. At the same time, dysfunctional beliefs scores were higher when participants had a low level of conscientiousness and a high level of positive reinterpretation. In other words, focusing on positive aspects of the profession has a beneficial effect on the individual only when his or her level of conscientiousness is high. Individuals scoring high on conscientiousness tend to be careful, responsible, and organized. When these qualities are not present, positive reinterpretation makes an individual more vulnerable to disruption by exposure from traumatic life experiences. Although people with high conscientiousness scores tend to use more problem-focused coping strategies (Hooker, Frazier, & Monahan, 1994) and engage in less emotion-focused coping (Hooker et al., 1994), positive reinterpretation, as a form of emotional coping, has a positive effect only in interaction with a high level of conscientiousness. This result could lead to the conclusion that conscientiousness is one of the most important traits that help individuals adjust to the demands of their workplace.

Also, based on previous research, higher levels of conscientiousness have been shown to significantly relate to positive changes in the wake of a traumatic event (Tedeschi & Calhoun, 1996) and to posttraumatic growth (Shakespeare-Finch, Gow, & Smith, 2005). Because helping people can lead to professional satisfaction and can help these workers improve their well-being (Ohaeri, 2003), focusing on positive aspects can protect people from vicarious trauma. Coping strategies are more like dispositions, while personality traits are stable factors. Since it is relatively difficult to change the Big Five personality traits, clinicians should focus on coping styles. These findings could be applied to counseling or management of health professionals by encouraging health professionals to

change their coping strategies in order to better adjust to the demands of the workplace.

Is well known that the effects of vicarious traumatization can include multiple affective symptoms, changes in cognitive schemas, disruptions in various life areas, and altered perceptions of the self, others, and the world. This research adds to the current body of knowledge regarding potential posttrauma outcomes and provides evidence that personality and coping variables play a role in people's perceptions of their own posttraumatic outcomes. Through this study, we support the idea that intervention strategies may be more effective if they are organized according to individuals' underlying personality dispositions, rather than according to the nature of an event itself (Moos, 2002).

In this study, increased age and years of service correlated with decreased disruption in beliefs. These results are in accordance with previous research (Pearlman & MacIan, 1995) but are inconsistent with constructivist self-development theory, which posits that vicarious traumatization results from cumulative exposure to traumatized clients over time. Further research is needed to clarify these aspects.

LIMITATIONS AND FUTURE DIRECTIONS

This study has some limitations. One is related to the fact that all variables were measured using self-reports. Also, this study was cross-sectional and required participants to recall coping efforts they usually used under stress. In this case, reports may be subject to memory biases (Moore, Sherrod, Liu, & Underwood, 1979). Longitudinal prospective research with trauma workers may help elucidate these relationships. Additionally, we suggest the need for a longitudinal study to clarify the cumulative effects of vicarious traumatization.

Another limitation of the present study concerns the generalization of the findings. Because there were a small number of men in our sample, the results of our study are most applicable to women. Further work is needed to replicate these findings in still larger samples, openly addressing both men and women. We also want to specify that we tested some exploratory hypotheses that need replication for greater confidence in these results.

In conclusion, the results converge to suggest that there is a significant relationship between personality, coping, and vicarious trauma, but further examination of the other dimensions of coping and particular types of vicarious trauma beliefs (esteem, safety, control, intimacy, trust) in this population is warranted. The present findings may guide future prospective research on individual differences in physicians' and nurses' vulnerability to vicarious trauma over time. Developing a clearer understanding of which personality factors relate to particular coping strategies and how coping dimensions

relate to different dysfunctional beliefs may help in the construction of pre-event education and intervention processes. Further research should also take into consideration the possibility that specific personality facets will better predict disruption in beliefs than do broad traits.

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