

The associations between vicarious trauma dysfunctional beliefs and traumatic stress among hospital personnel

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Abstract: The purpose of this present study was to investigate the association among vicarious trauma dysfunctional beliefs, professional experience and traumatic stress symptoms in a sample of physicians, nurses and paramedics. We also studied the moderating role of emergency activities in this relationship. A total of 107 medical staff participated in the study. Scales for measuring vicarious trauma beliefs and traumatic stress were administered to all the participants. The regression analysis showed that vicarious trauma dysfunctional beliefs significantly predicted symptoms of traumatic stress. Also, the results indicated that working in emergency situations moderated the relationship between dysfunctional beliefs and symptoms of avoidance. Suggestions for future research and clinical implications for what could be done to protect people indirectly exposed to trauma from traumatic stress are addressed.

Keywords: vicarious trauma beliefs, traumatic stress, professional experience

Introduction

During one's lifetime, almost all people are exposed to at least one traumatic event; however, the people who work in the helping professions are more prone to this type of exposure. There is no doubt that helping people in difficulty can lead to occupational satisfaction (Ohaeri 2003), but some activities can also lead to physical and psychological health problems for these practitioners (Argentero & Setti, 2011). Previous studies have shown that those who take care of traumatized people can develop the same emotive experiences, therefore indirectly becoming victims themselves (McCann & Pearlman, 1990). This phenomenon is known as vicarious traumatization (VT, McCann & Pearlman, 1990) and, specifically, it refers to changes that occur in perspective about self, others and the world as a result of exposure to the traumatic experiences from other people's life (Baird & Kracen, 2006).

The concept of VT is based on the constructivist self-development theory (CSDT, McCann & Pearlman, 1990), a developmental, interpersonal theory that explains the impact of traumatic events on an individual's psychological development, adaptation and identity (Collins & Long, 2003).

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According to this theory five major needs are sensitive to traumatic experiences: safety (feeling safe from harm produced by oneself or others), trust/dependency (being able to depend on or trust others and oneself), esteem (to feel valued by others and to value others and oneself), control (the need to be able to manage one's own feelings and behaviors, as well as to manage others) and intimacy (feeling connected to others or to oneself) (Kadambi & Ennis, 2004). As it can be seen from this description, these needs are reflected in beliefs about oneself and others. A trauma can disrupt cognitive schemata in one or more of these five fundamental areas of need (McCann & Pearlman, 1990). A factor that may account for the disruption of personal beliefs about self and others is professional experience, but the influence of this factor is unclear. According to the constructivist self-development theory, vicarious traumatization represents a cumulative transformative effect upon the individual who is exposed secondarily to a traumatic event (Luster, 2005). Some previous studies confirm this assumption, showing that working with traumatized peoples can have a cumulative effect, interfering with feelings, cognitive schemas, memories, self-esteem and/or sense of safety (Cunningham, 1996; McCann & Pearlman, 1990a, 1990b; Pearlman & Mac Ian, 1995; Schauben & Frazier, 1995). Other researchers (Adams, Matto, & Harrington, 2001; Baird & Jenkins, 2003; Pearlman & Mac Ian, 1995) have shown that 'newer' professionals experience the most difficulties. Therefore, those who saw more clients/patients had fewer cognitive disruptions/changes, inconsistent with the hypothesis that greater exposure is related to greater vicarious trauma. This suggests that a person's schemas might become less disruptive over time (Steed & Downing, 1998). Similarly, Pearlman and Mac Ian (1995) found that experienced counselors reported that they had less disrupted cognitive schemas and showed significantly less general distress. These findings appear to contradict McCann and Pearlman's (1990) definition of vicarious traumatization as a condition that develops as a result of gradual exposure to clients' traumatic experiences. Consequently, the influence of experience on vicarious traumatization is yet to be determined. Because a worker's experience can have an important influence (Nelson-Gardell & Harris, 2003; Simon, Pryce, Roff, & Klemmack, 2005), we aimed to identify the association between professional experience and dysfunctional beliefs in a sample of medical staff.

Dysfunctional beliefs and posttraumatic stress symptoms

One important assumption of the constructivist self-development theory is that vicarious trauma's intensity can increase over time through repeated contact with traumatized people and can produce posttraumatic stress symptoms in the practitioner (McCann & Pearlman, 1990; Pearlman & Mac Ian, 1995; Pearlman & Saakvitne, 1995). The disruption in schemas is

associated with feelings and/or thoughts of vulnerability. McCann and Pearlman (1990a) discuss tangible posttraumatic stress symptoms but emphasize their content rather than intensity in the context of profound belief system changes (Pearlman & Saakvitne, 1995). That is, when people are constantly exposed to traumatic events, they are confronted with a reality that contradicts their existing view of the world as a safety and benevolent place within which they and their loved ones are relatively safe from harm. Though the medical staff may not be exposed to such traumatic events directly, these professionals are indirectly exposed through the provision of medical assistance to the traumatized patients. Subsequently, the practitioner's own cognitive schemas may be challenged and disrupted as a result of exposure to their patient's trauma, which, in turn leads to the manifestation of the symptomatology specific to posttraumatic stress disorder. These symptoms that the helping professions may develop are identical to those presented by the direct victims, i.e. the symptoms of post-traumatic stress disorder: re-experiencing the critical event, even when it has not been directly experienced (McCann and Pearlman 1990); avoidance of people and places that may recall the event; hyper arousal responses (Figley 1995; McCann and Pearlman 1990). The re-experiencing or avoidance of specific aspects of the patient's traumatic memories becomes tangible via flashbacks, dreams, painful emotions or intrusive thoughts (McCann & Pearlman, 1990b). The pathological mental condition associated with a trauma can therefore be transmitted in a vicarious way from the victim to the rescue worker. Although, the main symptoms of vicarious trauma involve cognitive shifts, these may have a negative effect on the feelings, relationships, personal life as well as on the work with clients/ patients.

Several authors investigated the nature and the impact of traumatic events, reported by Emergency practitioners (Adriaenssens, De Gucht, van der Doef, Maes, 2011; Adriaenssens, Gucht, de & Exel, van & Maes, 2012; Kerasiotis & Motta, 2004; De Clercq, Dehegher, J., & Van Hoorde, 2011; Healy & Tyrrell, 2011). This research showed that Emergency practitioners are regularly confronted with a broad variety of traumatic events, (De Clercq et al., 2011) and they report symptoms of traumatic stress after professional confrontations with these events, such as nightmares, recurrent images and thoughts, flashbacks, sleeping difficulties, depression, lack of interest in daily life, loss of hope in the future, amnesia, anger, loss of concentration and restlessness (Caine & Ter-Bagdasarian, 2003). These negative experiences may lead to increased absenteeism and loss of productivity, due to a change in professional attitude. Moreover, even the quality of practitioners' care can be negatively altered (Donnelly & Siebert, 2009; Gates, Gillespie, & Succop, 2011). One has thus to be aware that traumatic stress in emergency care providers can have wide-ranging effects, not only

for the individuals themselves, but also for their work setting, as traumatic stress may lead to a decrease in job satisfaction and an increase in psychosomatic distress, sick leave and staff turnover (Collins & Long, 2003). Furthermore, the hectic work environment and overcrowding can hinder the recovery process and have a negative impact on the Emergency practitioners (Kilcoyne & Dowling, 2007). In addition to type and frequency of exposure to critical events, more time on the job has been found to be predictors of traumatic symptoms in Emergency medical staff (Dominguez-Gomez & Rutledge, 2009; Lapos, Alden, & Fullerton, 2003; Lavoie, Talbot, L., & Mathieu, 2011; Ortlepp & Friedman, 2002).

Emergency Medicine in Romania

Emergency Medicine in Romania started as an independence medical specialty in 1993, beginning with a period of training in residency for three years and then became a specialty of five years, organized in emergency departments following the Anglo - American model. The pre-hospital emergency care system allows for the intervention of the emergency medical crews in mobile intensive care ambulances or helicopters, crews consisting of emergency medicine physicians and nurses working in a hospital with paramedics, fire services paramedics and the ambulance services crews. The first generation of emergency physicians in Romania already have an experience of 20 years. They developed the emergency departments which actually created a complex organizational structure, professional training at European and international standards, a turn-over of the healthcare staff but mostly they have received and resolved medical issues with growing numbers of patients - between 40,000 and 90,000 patients a year in a 1st level emergency department of a university or county hospital. In this context, we can also talk about psychological and behavioural influences of the emergency activity on consultant doctors in medicine, specialists or residents, nurses and other staff of emergency services. Repetitive exposure to traumatic events can thus be seen as an important risk factor for the development of posttraumatic stress in Emergency practitioners. This observation stands behind the current research that aims to highlight the psychological trauma on emergency medical staff daily exposed to suffering, pain and subjectively influenced from their professional experiences.

The present study

The purpose of this study is to document quantitatively the occurrence of vicarious trauma experienced by health professionals, in the context of emergency work. We compared the results of participants from emergency department with the results of participants from other sections of a hospital, characterised by a higher level of stress but no intervention in emergency situations (ATI, Neurosurgery). It is obvious that a general medical population is less exposed to traumatic events than Emergency practitioners. This is consistent with previous research, indicating that the frequency of exposure to traumatic events in emergency care is high and almost continuous (Clohessy & Ehlers, 1999; Marmar, Weiss, Metzler, Ronfeldt, & Foreman, 1996). Changes in cognitive schemas are an indicator of vicarious trauma and consist of disruptions in beliefs about self and the others in five areas: safety, intimacy, trust, control and esteem. For the purpose of this study, cognitive schemas will be considered along with symptoms of traumatic stress: avoidance, arousal and intrusions. According to previous research, our objectives were: a) to identify the presence of dysfunctional vicarious trauma beliefs in relation with professional experience and; b) to study the moderator role of professional experience and type of work (emergency vs. nonemergency) in the relationship between dysfunctional beliefs and posttraumatic stress symptoms (intrusion, avoidance, arousal).

Method

Participants

The research was conducted in several hospitals from Romania. The sample of 107 participants consisted of 27.3% physicians, 10.9% resident physicians and 61.8 % nurses. 46.4 % of the participants work in the Emergency department and 53.6% in two other departments (ATI and Neurosurgery). Our research sample was largely comprised of women (75.5% women and 24.5% men). The ages ranged from 25 to 59 years, with a mean age of 39.14 years, $S=8.65$. The participants' experience ranged from 1 year to 22 years ($M = 10.47$ years, $S=9.71$).

Instruments

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 – strongly disagree, 6 – strongly agree). Negative items are reversely scored. 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 need areas, separate sets of items tap into beliefs about oneself and others yielding ten subscale scores and a total score; higher scores

represent a greater disruption. For the purpose of this study, the total score was used. Although the TABS was originally designed to measure the impact of trauma upon victims, some researchers have used the TABS to assess the impact of indirectly experienced trauma (Costa Maia, & Ribeiro, 2010; Trippany, White Kress, & Allen Wilcoxon, 2004). Cronbach alpha for the current sample were .88.

Secondary Traumatic Stress Scale (STSS; Bride et al. 2004) is a 17-item self-report instrument comprised of three subscales (Intrusion, Avoidance, Arousal) that are congruent with the PTSD symptom clusters as noted in the Diagnostic and Statistical Manual of Mental Disorders, 4th ed., Text Rev. (DSM-IV-TR; APA, 2000). Respondents indicated how frequently they experienced each of the 17 symptoms during the previous week using a 5-point scale (1 = never; 5 = very often) that provides scores for intrusion (example item “I thought about my work with victims when I didn’t intend to”), avoidance (example item “I wanted to avoid working with some victims”) and arousal (example item “I was easily annoyed”). A total score may also be computed and it may range from 17 (least likelihood of STS) to 85 (most likelihood of STS). A higher score indicated a higher level of traumatic stress. Cronbach alpha for this current sample were .75.

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

Procedure

The participants were informed that their taking part was voluntary and then they were asked to complete a questionnaire battery on a confidential basis. The participants completed all measures in the following (fixed) order: STSS, TABS and Demographics. The importance of answering truthfully was emphasized.

Results

Preliminary analyses

The vicarious trauma beliefs and secondary traumatic stress symptoms scores were normally distributed (the Kolmogorov-Smirnov Z were between 0.53 and 1.33, $p > .05$ for all variables). A t test analysis was conducted to examine the differences between women and men; the results revealed that there were no statistically significant differences in the ratings of dysfunctional beliefs or secondary traumatic stress symptoms (all $p > .10$). Also, a t test analysis was conducted to examine the differences between the participants from the emergency department and the participants from the nonemergency departments. The results revealed that the participants from the emergency department present significantly a higher level of avoidance ($M=15.79$) and arousal ($M=11.32$) than the participants from the nonemergency department ($M=14.75$, respectively 10.32). There were no

statistically significant differences in the ratings of dysfunctional beliefs, professional experience or intrusions. These results are presented in Table 1.

	Emergency		Non-emergency		t
	M	SD	M	SD	
Dysfunctional beliefs	108,89	18,57	108,54	15,62	,09
Experience	12,65	8,61	9,66	10,01	1,42
Intrusion	11,41	2,35	11,64	3,32	-,39
Avoidance	15,79	3,06	14,75	4,19	1,21*
Arousal	11,32	2,38	10,32	4,10	1,23*

Table 1. The results of independent sample t test for differences between the emergency department and nonemergency departments. Notes: ** p<.01, * p<.05.

Primary results

In order to examine potential associations among professional experiences, vicarious trauma beliefs and symptoms of traumatic stress, bivariate correlations (as shown in Table 2) were examined using the Pearson Correlation. The results indicate that for the nonemergency department, the participants' scores on dysfunctional beliefs were positive and significantly correlated only with arousal ($r = .59$ $p < .001$). For the emergency department, the participants' scores on dysfunctional beliefs were positive and significantly correlated with intrusions ($r = .45$ $p < .001$), avoidance ($r = .36$, $p < .001$) and arousal ($r = .36$, $p < .001$). For all the participants, there were no significant correlations among the participants' professional experiences and their scores on intrusions, avoidance, arousal and dysfunctional beliefs' total score. Means, standard deviations and correlation coefficients for all scales are reported in Table 2.

	Emergency					Non-emergency				
	1	2	3	4	5	1	2	3	4	5
1. DB	1					1				
2. Exp	.11	1				-.23	1			
3.I	.45**	.03	1			.37	.18	1		
4.Av	.36**	-.04	.66**	1		-.03	.25	.43*	1	
5. Ar	.36**	-.13	.63**	.76**	1	.59**	-.23	.48**	.13	1
Mean	109,02	9,66	11,67	14,83	10,35	108,89	12,65	11,41	15,79	11,32
Std dev	15,64	10,01	3,32	4,24	4,16	18,57	8,61	2,35	3,06	2,38

Table 2. Correlations, means and SDs of analysed variables; Notes: DB – dysfunctional beliefs; Exp – professional experience; I – intrusion; Av – avoidance; Ar – arousal; ** $p < .01$, * $p < .05$.

To test whether the symptoms of posttraumatic stress (intrusion, avoidance, and arousal) could be predicted by dysfunctional beliefs and to also study if this relationship is moderated by the type of professional activities, we used the bootstrapping method. Because professional experience did not correlate with dysfunctional trauma beliefs, nor with traumatic stress symptoms, we did not use this variable as a moderator when it came to the relationship between dysfunctional trauma beliefs and traumatic stress. The bootstrapping method involves taking the original data set of N heights and sampling from it to form a new sample; the present data were sampled 5000 times. The dysfunctional beliefs' score was entered in the first step, a type of professional activity in the step 2 (dummy variable), while the interaction between dysfunctional beliefs and the type of professional activities was entered in step 3. Multiple regression analyses were conducted to assess the predictors for each dependent variable: intrusion, avoidance and arousal. Firstly, it was found that dysfunctional beliefs predicted intrusion ($b = .08$, $p < .001$), avoidance ($b = .07$, $p = .003$) and arousal ($b = .09$, $p < .001$). The type of professional activities was not a significant predictor for symptoms of posttraumatic stress, but there was a significant interaction between this variable and dysfunctional beliefs in predicting avoidance symptoms ($b = .10$, $p = .047$). The results are presented in table 3. The nature of the significant interaction is illustrated in Figure 1.

			Intrusion	Avoidance	Arousal
Step 1	DB	b	.08**	.07*	.09*
Step 2	Section	b	.24	-1.02	-.97
Step 3	DBxSE	b	.04	.10*	-.01
		R ²	.18**	.12**	.16**
		F	5.80**	5.91**	5.98**

Table 3. Regression model predicting intrusion, avoidance, and arousal. Notes: **p<.01, *p<.05.

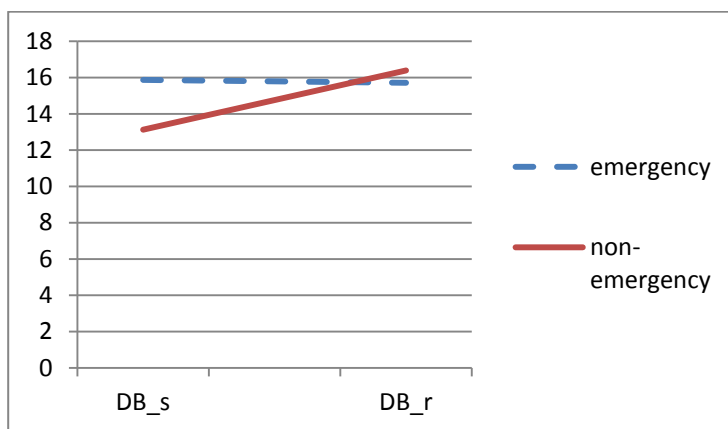


Figure 1. The interaction between the type of professional activities and dysfunctional vicarious trauma beliefs in predicting avoidance

Discussions

The first purpose of this present study was to explore the relation between dysfunctional vicarious trauma beliefs and traumatic stress symptoms in a sample of medical staff. Moreover, we studied the moderator role of type of professional activities for this relationship. Specifically, we predicted that the association between dysfunctional vicarious trauma beliefs and traumatic stress symptoms will be stronger for the participants that work in context of exposure to ongoing stress generated by the critical situation that requires emergency intervention, when, often, their intervention makes the differences between life and death.

As we predicted, vicarious trauma beliefs are positively associated with all symptoms of traumatic stress – intrusion, avoidance and arousal – for emergency practitioners. For the participants from the nonemergency departments, vicarious trauma beliefs are positively associated only with arousal. Therefore, in response to cognitive changes, professionals may also experience sub-clinical traumatic stress symptoms of intrusion, avoidance

and arousal (Kadambi & Ennis, 2004; McCann & Pearlman, 1990; Pearlman & Saakvitne, 1995a). It seems that offering support and assistance in an emergency situation to those coping with emotional pain, instability or crisis can significantly tax the emotional energy of professionals, leading to the development of traumatic stress (Kadambi & Ennis, 2004). Regarding the association among professional experience, vicarious trauma dysfunctional beliefs and traumatic stress, we found that experience was unrelated to any of these manifestations. Therefore, like in some previous studies, more exposure to human pain showed no evidence of greater vicarious trauma or traumatic stress (Baird & Jenkins, 2003).

When we analyzed the moderating role of emergency situations on the relationship between vicarious trauma dysfunctional beliefs and symptoms of traumatic stress, we found that the type of professional activities significantly moderated the relationship between vicarious trauma dysfunctional beliefs and symptoms of avoidance. Specifically, we found that emergency practitioners present a higher level of avoidance than nonemergency workers only when they have a low level of dysfunctional beliefs. For a high level of dysfunctional belief it seems that there are no significant differences between emergency and nonemergency practitioners concerning the avoidance symptoms. Therefore, emergency practitioners that are regularly exposed to occupation-related traumatic incidents are more prone to develop traumatic stress symptoms, even when the level of dysfunctional beliefs is low. This is an important finding, not only for the emergency practitioners but also for the hospital management, because these effects may generate a decrease in task performance and job satisfaction, a rise in turnover intention and even a decrease in quality of care (Adriaenssens, Gucht, & Maes, 2012; Van Bogaert et al., 2010; Slatten et al., 2011). Screening and mentoring of high-risk individuals should therefore be considered, particularly following a major traumatic event or cumulative exposure (Healy & Tyrrell, 2011; McFarlane & Bryant, 2007).

Several limitations of this study should be noted. First, due to the cross-sectional design of the study, one cannot draw conclusions regarding causal relationships. Another limitation of this 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 to both men and women. As a conclusion, we mention that our results support the hypothesis that the dysfunctional beliefs concerning self and the work are positive predictors of traumatic stress symptoms, although there were no significant correlations among the participants' experience in an emergency and their scores on intrusions, avoidance, arousal and

dysfunctional beliefs. In order to study a large variety of implications of vicarious trauma, including the positive effects, further studies are needed.

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