A correlational study of the relationships between coping strategies and vicarious trauma beliefs

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Initial receipt: 21.09.2012 Final revision received: 02.11.2012 Accepted: 11.02.2013

Abstract: The purpose of this research is to investigate the associations between vicarious trauma beliefs and the use of particular coping strategies in a sample of hospital workers. A total of 131 medical staff participated in this study. To measure the participants' coping strategies when faced with stressful events, the 53-item COPE scale (Carver, Scheier, & Weintraub, 1989) was used. The participants in this study also completed the The Trauma Attachment and Belief Scale (TABS; Pearlman, 2003). Pearson's correlations revealed that all types of dysfunctional beliefs are significantly relate with the use of a particular coping strategy. Positive reinterpretation is negatively associated, while mental and behavior disengagement are positively associated with almost all types of dysfunctional vicarious trauma beliefs. The research contributes to existing knowledge of how dysfunctional trauma beliefs are related to coping strategies when confronted with adversity.
Keywords: problem focused coping, emotional focused coping, dysfunctional coping, vicarious trauma beliefs

Introduction

It is now recognized that posttraumatic stress disorder (PTSD) may affect not only the direct victims of some experiences, but also the ones whose professional duties entail helping these victims (Benedek, Fullerton & Ursano, 2007; Ehring, Razik & Emmelkamp, 2011). Since one cannot be close to trauma without being somehow impacted by it, it is not surprising that some workers are at great risk of developing symptoms of traumatic stress (Fullerton, Ursano & Wang, 2004). The pathological 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).This has been referred to in the literature as vicarious traumatization (McCann and Pearlman, 1990). Whereas posttraumatic stress disorder (PTSD) refers to the impact on primary victims of trauma, vicarious traumatization refers to the impact on secondary victims of trauma (those that work with the primary victims of trauma).

Vicarious traumatization is a phenomenon where staff that provide services to traumatized populations are indirectly traumatized as a result of the professional helping relationship. This phenomenon has been documented from clinicians working in fields, such as health and substance abuse (Bride, Hatcher, & Humble, 2009; Meldrum, King & Spooner, 2002; Pearlman & Mac Ian, 1995), child welfare

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(Bride, Jones & MacMaster, 2007), domestic violence and sexual assault counseling (Bell, Kulkarni, & Dalton, 2003; Schauben & Frazier, 1995; Slattery & Goodman, 2009), and social work (Bride, 2007; Cunningham, 2003). The origins of the construct of vicarious trauma are rooted within the Constructivist Self-Development Theory (CSDT) (McCann & Pearlman, 1990). Blending a variety of theoretical approaches, the CSDT theory identifies specific ways in which working with trauma clients can disrupt the individual's imagery system of memory, as well as schema about the self and others (McCann & Pearlman, 1990). 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 schemata in one or more of five fundamental need areas: safety, trust/ dependency, esteem, intimacy, and control.

Safety needs involve the desire to feel safe and not be vulnerable. According to Pearlman and Saakvitne (1995), higher levels of fearfulness, vulnerability, and concern may be ways in which this disruption in safety needs is manifested. Trust needs reflect an individual's ability to trust her or his own perceptions and beliefs, as well as to trust others' ability to meet his or her emotional, psychological, and physical needs (Pearlman & Saakvitne, 1995a). Esteem needs involve feelings of being valued and appreciated as well as valuing and appreciating others. Intimacy is the need to feel connected to others, and to the larger community (Pearlman & Saakvitne, 1995a). The consequences of disruptions in this area are feelings of emptiness when alone, difficulty enjoying time alone, an intense need to fill alone time, and avoidance and withdrawal from others. Finally, control needs are related to self-management; when schemas are disrupted regarding sense of control, the resulting beliefs and behaviors may be helplessness and/or over control in other areas (Pearlman & Saakvitne, 1995a). A stressful or traumatic event may create a disturbance of an individual's self developed reality and disrupt one or more of the individual's needs (McCann & Pearlman, 1990a). The impact that an event has is affected by the person's life experiences, culture and the social context in which the event occurs; thus, the effects of traumatic experiences are unique to every individual (Deiter, Nicholls & Pearlman, 2000).

A large body of literature considers various coping strategies employed by emergency service professionals and the mediating effects of coping on stress and distress (Tully, 2004; Haisch & Meyers, 2004; LeBlanc, Regehr, Jelley & Barath, 2008; Wastell, 2002). Although not conclusive, some studies (Steed & Downing, 1998; Pearlman & Mac Ian, 1995; Schauben & Frazier, 1995) have found that coping strategies can influence levels of vicarious traumatisation and reduce the risks.

Humans generally react with distinct coping strategies to different types of stressors based on the nature of the events or on their own resources (Lazarus & Folkman, 1984). Coping can be defined as the manner in which a person will use

his/her intellectual and behavioral resources to respond to a stressful situation (Dollard, Dollard, Byrne, & Byrne, 2003). Although there are discrepancies with regard to the particular organization of various types of coping styles, they are often divided into the categories of problem focused coping and emotional focused coping (Lazarus and Folkman, 1984). Problem focused coping includes attempts to modify or eliminate the sources of stress through action, while emotion-oriented coping includes behavioral and cognitive responses primarily aimed at managing emotional reactions to a stressor and maintaining emotional equilibrium. A notable contribution to literature about coping is the work of Carver, Scheier, and Weintraub (1989). They argue that each broad type of coping (emotion-focused coping, problem-focused coping) may involve several distinct strategies. Carver et. al (1989) developed the Coping Orientation to Problem Experience (COPE) Inventory, which measures 13 strategies that are grouped into problem-focused coping (active coping, planning, suppression of competing activities, restraint, and seeking social support for instrumental reasons), emotion-focused coping (seeking social support for emotional reasons, positive reinterpretation, acceptance, religion, and denial), and dysfunctional coping (mental disengagement, behavioral disengagement, and venting of emotions). Active coping describes a person who takes active steps to attempt to reduce or eliminate the effects of the stressor. This strategy is usually elicited if the stressor is controllable or escapable. When a person puts other distracting projects aside in order to better deal with the stressor, we can talk about suppression of competing activities. Another form of coping is planning, which occurs when a person uses planning strategies to cope with the stressor. If a person waits for an appropriate opportunity to act, it presents a restraint coping. Seeking social support can be used both for instrumental reasons (when people seek others for advice or information) and for emotional reasons (people seek others for sympathy, and understanding). Social support has been documented as being a critical predictor of adjustment after experiencing a traumatic event (Eriksson, Van de Kemp, Gorsuch, Hoke & Foy, 2001; Lugris, 2000; Thompson, Norris & Ruback, 1998). When a person uses positive reinterpretation as a coping strategy, he/she views a stressor in more positive terms. Denial, as opposed to acceptance, describes a person who doesn't recognize the reality of a stressful event. Though in the short-term denial can be protective against overwhelming emotions, it ultimately has been proven to be ineffective and may prevent normal recovery (Ehlers & Clark, 2000; Gersons & Olff, 2005). Another form of emotion-focused coping is turning to religion to help people cope. There are some dysfunctional ways of coping too, as mentioned by Carver et al. (1989). These involve attempts to actively avoid confronting the problem. Passive coping strategies (disengagement) are evoked if the stressor is uncontrollable or inescapable. Another example of dysfunctional coping is venting, when people deeply concentrate on and vent their emotions.

Studies with emergency service professionals suggest that all of these types of coping are used. In a crisis situation, emergency professionals become highly

task-oriented, but they also work to maintain emotional control (Rowe & Regehr, 2010). However, results concerning the relationship between coping strategies and mental health in rescue personnel are quite contradictory. Problem-focused coping has been found to be associated with both high (Marmar, Weiss, Metsler & Delucchi, 1996) and low levels of distress (Brown, Mulhern & Joseph, 2002). Emotion-focused coping has been associated to lower psychological distress (Brown et al., 2002) but seeking social support for emotional reasons and venting of emotions have not (Beaton, Murphy, Johnson, Pike, & Cornell, 1999; Clohessy & Ehlers, 1999). Other studies have shown that social support and active problem focused coping significantly protects against PTSD and generally helps individuals handle the traumatic stressor, control the situation and avoid long-term emotional dysregulation (Brewin & Holmes, 2003; Ozer, Best, Lipsey, & Weiss, 2003; Olff, Langeland, & Gersons, 2005). In spite of these contradictions, many authors seem to agree with the fact that in the context of traumatic stress, active or instrumental coping strategies, such as positive thinking or actively dealing with problems, have been associated with a positive adaptation to stress whereas passive coping strategies, such as avoidance, are most often considered to be maladaptive (Linley & Joseph, 2004). However, the threatening aspect of the stimulus is maintained in defensive coping, which is often reported after critical incidents, such as withdrawal or denial (Birmes, Hazane, Calahan, Sztulman, & Schmitt, 1999).

The Current Study

The purpose of this study was to investigate vicarious trauma, in the context of treating human pain. Medical emergency workers continuously face events where human suffering and pain are present, and this ongoing exposure may affect their well-being and health (Costa Maia & Ribeiro, 2010). The interest in the well-being of rescue and emergency workers is related to the recognition that they are more exposed, indirectly and directly, than civilian victims to experiences that have traumatic characteristics. Hospital-based physicians and nurses in critical care regularly deal with dying patients, severe injury and threat (Dane & Chachkes, 2001; Boer, Lok, van't Verlaat, Duivenvoorden, Bakker, & Smi, 2011) and need to address their patients' pain and trauma as well as their own reactions and feelings. This can be difficult in a hospital environment that allows little time for processing these reactions (Dane & Chachkes, 2001). After a critical incident, the immediate stress reactions enable health professionals to adequately deal with these situations, but a prolonged stress response could eventually cause health problems (Selye, 1976). However, not all health professionals exposed to critical incidents; they develop symptoms of traumatic stress or relational difficulties. It seems safe to assume that certain protective factors shield some professional care givers from the harmful effects of exposure to critical incidents (Ashikyan, 2005). To manage the emotional and physical symptomatology associated with exposure to critical incidents, emergency professionals use a variety of coping methods. The way in which the people appraise their experience of vicarious trauma and the manner in

which they cope with its effects, plays a significant role in determining the presence of posttraumatic symptoms. Coping methods that reduce traumatic stress symptomatology are necessary for emergency professionals because they cope daily with extraordinary and unrelenting stress.
Changes in cognitive schemas are an indicator of vicarious trauma and consist of disruptions in beliefs about self and others in five areas: safety, intimacy, trust, control and esteem. For the purpose of this study, all of these cognitive schemas will be considered.

Method

Participants

The research took place in two hospitals from two towns of Romania. The participants in this study are 131 medical workers from the Emergency and the Intensive Care units. Most of whom (67.2%) are nurses; 25.2% are physicians and 7.6% resident physicians. Our research sample was largely comprised of women (82.4% women and 15.3% men). The ages ranged from 24 to 65, with a mean age of 38.25 years, SD = 10.11. The participants had considerable experience in health care in general (M = 12.24 years, SD = 11.17). All of the participants answered a set of questionnaires, after signing a confidentiality contract.

Instruments

The 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-reporting measure. Participants are instructed to report what they usually do when they are under stress. Respondents choose 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). Cronbach alphas range between .70 and .76, for each of the 13 subscales.

The Trauma Attachment and Belief Scale (TABS)
The Trauma Attachment and Belief Scale (TABS; Pearlman, 2003) was used to measure disruptions of cognitive schemas. There are 84 items rated on a 6-point Likert-type scale ranging from 1
(*disagree strongly*) to 6 (*agree strongly*). Negative items are reverse scored. The TABS is a self-report measure consisting of 10 scales (safety, trust, esteem, intimacy and control; within each of these needed areas, separate sets of items tap

into beliefs about oneself and others) and a total TABS score. Higher scores on the TABS indicate more cognitive disruption. Although the TABS was originally designed to measure the impact of trauma upon victims (Pearlman, 2003), some researchers have used the TABS to assess the impact of indirectly experienced trauma (Cunningham, 2003; Pearlman & Mac Ian, 1995; Schauben & Frazier, 1995; VanDeusen & Way, 2006). Cronbach alphas range between .65 and .89, for each of the 10 subscales. For the total score, Cronbach alphas were .92.

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

Procedure

Permission for this research was obtained from the Heads of the Organizations and informed consent was obtained from all the participants. Because the workload at the workplace is very high, the participants completed the questionnaires at home. They were 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 were asked to think about the more recent stressful events which occurred during their work activity and to indicate the extent to which they coped with them using the different strategies. Participants completed all measures in the following (fixed) order: COPE, TABS, and Demographics. The questionnaires were filled in, anonymously and voluntarily, and 131 correctly filled in questionnaires were sent back.

Results

A *t test* analysis was conducted to examine the differences between physicians and nurses. The results revealed that there were statistically significant differences in the ratings of dysfunctional beliefs about self esteem ($t(129)=2.48$, $p=.014$), higher scores being obtained by physicians ($M=18.46$; nurses: $M=16.42$). There are not significant differences between physicians and nurses concerning the other types of dysfunctional beliefs. Further analyses will be conducted using data from the entire sample.

Mean and standard deviation for each COPE scale are shown in Table 1. The most used coping strategies were suppression, positive reinterpretation and planning. Venting, behavioral disengagement and mental disengagement were the least used coping strategies.

Table 1: *Mean and standard deviation for each COPE scale*

Coping strategies	Mean	Std. deviation
Suppression	18.00	4.28
Positive reinterpretation	16.00	2.34
Planning	16.00	2.41
Restrain coping	14.00	2.30
Use of instrumental support	14.00	2.68
Use of emotional support	13.00	2.95
Active coping	12.00	1.84
Acceptance	12.00	1.93
Religion	10.00	2.67
Denial	9.00	2.83
Venting	8.00	2.33
Behavioral disengagement	8.00	2.62
Mental disengagement	7.00	2.00

In order to examine the associations between dysfunctional beliefs and coping strategies, Pearson bivariate correlations were examined.

The associations between vicarious trauma beliefs and problem focused coping strategies

The analysis (Table 2) indicates a significant negative correlation between active coping and dysfunctional beliefs about self esteem (r=-.22; p=.009), other esteem (r=-.20; p=.019), self trust (r=-.19; p=.024), other trust (r=-.24; p=.004) and other intimacy (r=-.28; p=.001). A greater use of planning, as a coping strategy, is associated with a lower level of dysfunction in beliefs about self esteem (r=-.19; p=.023) and other trust (r=-.17; p=.047). There is a positive correlation between restrain coping and dysfunctional beliefs about self control (r=.18; p=.039) and also between instrumental social support and self intimacy beliefs (r=.20; p=.017). In other words, a greater use of restrain coping is associated with a higher level of dysfunction in beliefs about self control, and a greater use of instrumental social support is associated with a higher level of dysfunction in beliefs about self intimacy. There were no significant correlations between the participants' scores on suppression and their scores on dysfunctional trauma beliefs.

Table 2. *Descriptive statistics and correlations between vicarious trauma beliefs and problem focused coping strategies*

	1	2	3	4	5	6	7	8	9
VT beliefs									
1. self safety	-								
2. other safety	.45**	-							
3. self esteem	.49**	.39**	-						
4. other esteem	.61**	.27**	.52**	-					
5. self trust	.24**	.22*	.43**	.40**	-				
6. other trust	.54**	.24**	.52**	.67**	.30**	-			
7. self intimacy	.33**	.35**	.16	.14	.05	.13	-		
8. other intimacy	.51**	.35**	.66**	.63**	.32**	.63**	.16	-	
9. self control	.48**	.39**	.43**	.50**	.28**	.45**	.14	.56**	-
10. other control	.47**	.35**	.37**	.44**	.37**	.46**	.09	.45**	.62**
Coping strategies									
11. active coping	-.13	-.07	-.22**	-.20*	-.19*	-.24**	.07	-.28*	-.11
12. planning	.01	.06	-.19*	-.14	-.03	-.17*	.12	-.15	.05
13.suppression	.05	.05	-.06	.06	-.14	.02	-.04	-.04	.16
14.restrain coping	.08	-.05	.03	.11	-.06	.14	.02	.08	.18*
15.Instr. support	-.04	.04	-.01	-.06	.03	-.15	.20*	-.13	.10
Mean	25.9	17.1	17.0	21.4	16.8	22.7	13.5	17.5	29.9
SD	6.07	3.42	4.51	5.57	6.30	6.55	3.61	5.24	6.36

	10	11	12	13	14	15
Coping strategies						
11. active coping	-.06	-				
12. planning	.10	.40**	-			
13.suppression	.04	.13	.29**	-		
14.restrain coping	.09	.42**	.31**	.27**	-	
15.Instr. support	.04	.32**	.34**	-.08	.24**	-
Mean	21.07	11.4	15.7	18.2	13.6	13.7
SD	4.75	1.84	2.41	4.28	2.30	2.68

Notes: ** p<.01, *p<.05

The associations between vicarious trauma beliefs and emotion focused coping strategies: The analysis (Table 3) indicates that emotional support is negatively and significantly associated with dysfunctional beliefs about other trust (r=-.19; p=.025) and other intimacy (r=-.20; p=.021), and positively associated with dysfunctional beliefs about self intimacy (r=.28; p=.001). A greater use of positive reinterpretation is associated with a lower level of dysfunction in beliefs about self safety (r=-.25; p=.004), other safety (r=-.20; p=.022), self esteem (r=-.37; p<.001), other esteem (r=-.37; p<.001), self trust (r=-.33; p<.001), other trust (r=-.35; p<.001), other intimacy (r=-.40; p<.001), self control (r=-.20; p=.020) and other control (r=-.21; p=.012). The participants' scores on acceptance were negatively and significantly correlated with dysfunction in beliefs about self esteem (r=-.17; p=.048), other esteem (r=-.24; p=.004), and self intimacy (r=-.27; p=.002). A greater use of religion is associated with a higher level of dysfunction in beliefs about self control (r=.25; p=.004). Denial is positively and significantly associated with disrupted beliefs about self safety (r=.41; p<.001), other safety (r=.21; p=.016), self esteem (r=.31; p<.001), other esteem (r=.33; p<.001), other trust (r=.34; p<.001), other intimacy (r=.32; p<.001), self control (r=.39; p<.001), and other control (r=.31; p<.001).

Table 3: *Descriptive statistics and correlations between vicarious trauma beliefs and emotion focused coping strategies*

	1	2	3	4	5	6	7	8	9
VT beliefs									
1. self safety	-								
2. other safety	.45**	-							
3. self esteem	.49**	.39**	-						
4. other esteem	.61**	.27**	.52**	-					
5. self trust	.24**	.22*	.43**	.40**	-				
6. other trust	.54**	.24**	.52**	.67**	.30**	-			
7. self intimacy	.33**	.35**	.16	.14	.05	.13	-		
8. other intimacy	.51**	.35**	.66**	.63**	.32**	.63**	.16	-	
9. self control	.48**	.39**	.43**	.50**	.28**	.45**	.14	.56**	-
10. other control	.47**	.35**	.37**	.44**	.37**	.46**	.09	.45**	.62**
Coping strategies									
11. Emot. support	-.05	.05	-.09	-.04	.04	-.19*	.28**	-.20*	.02
12. pos. reinter.	-.25**	-.20*	-.37**	-.37**	-.33**	-.35**	-.14	-.40**	-.20*
13. acceptance	-.16	-.05	-.17*	-.24**	-.08	-.14	-.27**	-.10	-.08
14. religion	.16	.13	.07	.01	-.05	.05	.12	.10	.25**
15. denial	.41**	.21*	.31**	.33**	.14	.34**	.14	.32**	.39**
Mean	25.9	17.1	17.0	21.4	16.8	22.7	13.5	17.5	29.9
SD	6.07	3.42	4.51	5.57	6.30	6.55	3.61	5.24	6.36

	10	11	12	13	14	15
Coping strategies						
11. Emot. support	-.03	-				
12. pos. reinter.	-.21*	.15	-			
13. acceptance	-.01	.01	.23**	-		
14. religion	.09	.29**	.19*	.08	-	
15. denial	.31**	.001	.001	-.11	.16	-
Mean	21.0	12.7	15.9	12.1	10.1	9.37
SD	4.75	2.95	2.34	1.93	2.67	2.83

Notes: ** p<.01, *p<.05

The associations between vicarious trauma beliefs and dysfunctional coping

In this study, venting emotion is positively associated with all disrupted beliefs about self and others (all p<.03). A greater use of behavioral disengagement is associated with a higher level of disrupted beliefs about self safety (r=.29; p=.001), self esteem (r=.34; p<.001), other esteem (r=.24; p=.005), self trust (r=.19; p=.028), other trust (r=.28; p=.001), other intimacy (r=.32; p<.001), self control (r=.23; p=.007) and other control (r=.22; p=.009). Also, a greater use of mental disengagement is associated with a higher level of disrupted beliefs about self safety (r=.24; p=.005), other safety (r=.19; p=.023), self esteem (r=.38; p<.001), other esteem (r=.34; p<.001), self trust (r=.25; p=.004), other trust (r=.22; p=.009), other intimacy (r=.41; p<.001), self control (r=.36; p<.001) and other control (r=.24; p=.004).

Table 4: *Descriptive statistics and correlations between vicarious trauma beliefs and dysfunctional coping strategies*

	1	2	3	4	5	6	7	8	9
VT beliefs									
1. self safety									
2. other safety	.45**								
3. self esteem	.49**	.39**							
4. other esteem	.61**	.27**	.52**						
5. self trust	.24**	.22*	.43**	.40**					
6. other trust	.54**	.24**	.52**	.67**	.30**				
7. self intimacy	.33**	.35**	.16	.14	.05	.13			
8. other intimacy	.51**	.35**	.66**	.63**	.32**	.63**	.16		
9. self control	.48**	.39**	.43**	.50**	.28**	.45**	.14	.56**	
10. other control	.47**	.35**	.37**	.44**	.37**	.46**	.09	.45**	.62**

Coping strategies									
11. venting	.35**	.31**	.35**	.34**	.25**	.40**	.20*	.52**	.47**
12. behavior disengag.	.29**	.07	.34**	.24**	.19*	.28**	.07	.32**	.23**
13. mental disengage.	.24**	.19*	.38**	.34**	.25**	.22**	.09	.41**	.36**
Mean	25.96	17.1	17.0	21.4	16.8	22.7	13.5	17.5	29.9
SD	6.07	3.42	4.51	5.57	6.30	6.55	3.61	5.24	6.36
	1	2	3	4	5	6	7	8	9

	10	11	12	13
Coping strategies				
11. venting	.31**			
12. behavior disengag.	.22**	.46**		
13. mental disengage.	.24**	.15	.35**	
Mean	21.0	7.87	8.72	7.08
SD	4.75	2.33	2.62	2.00

Notes: ** p<.01, *p<.05

Discussions

This present study addressed the coping strategies of emergency workers. Dealing with patient emergencies and crises can be very stressful. A stress-inducing event is not only in the province of the emergency room or crisis clinic practitioner, it can occur in the course of one's routine clinical practice. The processes by which these workers cope with stress could be considered essential.

The results showed that the most used coping strategies were suppression, positive reinterpretation and planning. Venting, behavioral disengagement and mental disengagement were the least used coping strategies. These findings are in line with previous studies (Burke & Paton, 2006; Shipley & Gow, 2006; Prati, Palestini & Pietrantoni, 2009). Thus, we can infer that emergency workers tend to engage in adaptive coping strategies rather than avoidance and dysfunctional coping strategies. In previous research, suppression have reportedly functioned as protective factors and may be responsible for individuals' resilience following exposure to a critical incident (Bonanno, 2004; Bonanno, Noll, Putnam, O'Neill, & Trickett, 2003).

In our study, a greater use of active coping is associated with less dysfunctional beliefs about self esteem, other esteem, self trust, other trust and other intimacy. Several studies in nurses have shown similar results for active coping as a protector for burnout (Healy & McKay, 2000; Buurman, Mank, Beijer, & Olff, 2011). A greater use of planning, such as coping strategy, is associated with a lower level of dysfunction in beliefs about self esteem and other trust but

these relations were small in the way they were as well as in previous research (Littleton, Horsley, Siji & Nelson, 2007). We also found that a greater use of restrain coping is associated with a higher level of dysfunction in beliefs about self control.

Our study results diverged where the role of emotion-specific coping strategies are concerned. A coping strategy that appears to be favored by medical staff and that was associated with better psychological outcomes is positive reinterpretation of the situations. A greater use of positive reinterpretation is associated with a lower level of dysfunction in beliefs about self safety, other safety, self esteem, other esteem, self trust, other trust, other intimacy, self control and other control. Because helping people can lead to professional satisfaction and can help these workers improve their well being (Ohaeri, 2003), focusing on the positive aspects can protect people from vicarious trauma.

The participants' scores on acceptance were negatively and significantly correlated with dysfunction in beliefs about self esteem, other esteem and self intimacy, while denial was positively and significantly associated with self safety, other safety, self esteem, other esteem, other trust, other intimacy, self control, and other control. The use of avoidance and denial has been associated with higher distress or posttraumatic stress symptoms in both cross-sectional (Chang et al., 2003) and longitudinal studies (Beaton et al., 1999).

Some authors have noted that social support may be sought for either instrumental reasons (such as advice and practical assistance) or emotional reasons (such as moral support and understanding) and that both purposes frequently occur together (Carver, Scheier, & Weintraub, 1989). In general, it has been found that for all age groups, social resources are able to mediate the effects of stressors, which result in distress (Haddy & Clover, 2001). When a person is in a distressing situation, social support has a negative effect on the degree of distress experienced and helps to decrease the amount of distress felt by the person (Weiss, Marmar, Metzler & Ronfeldt, 1995). In our study, a higher level of social support seeking for emotional reasons was associated with a lower level of dysfunctions about other trust and other intimacy, but, unexpectedly, seeking social support for both instrumental and emotional reason, such as a coping mechanism, was associated with an increased chance of developing dysfunction in beliefs about self intimacy. A negative correlation between perceived social support and trauma-related symptoms, depression and symptoms of traumatic stress was also showed as well as in some previous research (Regehr, Hill, Knott & Sault, 2003; Ortlepp & Friedman, 2002; Buurman et al., 2011). Possibly, the amount of positive appreciation received from others is not great enough to be effective. However, because we did not have information on causal pathways we cannot rule out that the persons who experienced more dysfunctional beliefs are also the ones that seek more social support. Thus, the role of social support in relation to the origin of vicarious trauma beliefs requires further research.

Finally, negative coping responses have been documented as increasing the risk of experiencing and maintaining posttraumatic distress (Lugris, 2000). In this study, venting emotion is positively associated with all disrupted beliefs about self and others; this represents the most detrimental coping method used in our sample. A greater use of behavioral disengagement and mental disengagement is associated with a higher level of disrupted beliefs about self safety, self esteem, other esteem, self trust, other trust, other intimacy, self control and other control. Also, a greater use of mental disengagement is associated with a higher level of disrupted beliefs about other safety issues, too.

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 the participants to recall coping efforts they usually used under stress. In this case, reports may be subject to memory biases (Moore, Sherrod, Liv, & 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 traumatisation. 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 to both men and women. Also, although multiple coping strategies were found to be associated with greater vicarious trauma effects, it is not clear whether the participants' responses to the questionnaires related to their own (primary) trauma or to the effect of working with traumatized clients (vicarious trauma).

Despite these limitations, this study also has a number of strengths. First, it is unique in that it explores the impact of vicarious trauma on a little studied occupational group (medical staff). Second, it suggests viable coping strategies for intervention in this group (Sabin-Farrell & Turpin, 2003). These findings could be applied for counseling or management of health professionals by encouraging health professionals to change their coping strategies in order to better adjust to the demands at the workplace.

To conclude, coping strategies are not inherently good or bad, but their adaptive qualities depend on the controllability of the situation (Folkman & Moskowitz, 2004; Lazarus & Folkman, 1984). Since emergency workers are not necessarily exposed to controllable stressful situations, we propose that coping strategies should be investigated further, taking into account the specific context in which they occur. Although the literature seems to portray contradictory data on what types of coping methods are helpful after exposure to a critical incident, there seems to be unanimity on the need to research coping methods that show promise for mitigating traumatic stress symptomatology associated with exposure to critical incidents. The literature also supported the conclusion that no particular method of

coping assures protection from the harmful effects of exposure to critical incidents. It is likely that emergency service providers are best served by developing their ability to utilize a variety of coping methods that are adaptable to specific circumstances (Alexander & Kline, 2001).

Acknowledgements
This work was supported by the European Social Fund in Romania, under the responsibility of the Managing Authority for the Sectoral Operational Programme for Human Resources Development 2007-2013 [Grant POSDRU/CPP 107/DMI 1.5/S/78342] awarded to Cornelia Măirean.

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