

Health care providers-psychiatric profile of carers after a hiatus of ten years of a devastating Pakistan earthquake

Background

Disasters are known to change people's lives, both victims and their careers. Rescue and relief workers are also significantly affected by the psychological consequences of disasters.

Aim: To assess the psychological impact of 8th Oct 2005 earthquake of Pakistan on the health care providers who worked in the affected areas.

Methods: A group of health care providers who worked in the disaster affected areas for 6 months, belonging to the Armed Forces were approached through the heads of their organizations after a lapse of this time period. Since there is a central computerized record of all the personnel who worked in the relief work, it was relatively easy to track down the participants who provided relief work in earthquake of Oct 2005. The participants were initially contacted on phone and then subsequently interviewed and asked to make responses to a battery of psychological instruments and questionnaires, designed to measure different psychosocial distresses and disorders at 10 years post-earthquake. The data collected was compared with an age and gender matched controls.

Results: The results showed General health Questionnaire-28 (GHQ-28) 'Caseness' in 79.3% of the cases, Impact of Events Scale (IES) measured psychological distress in 27.1% of the cases, Compassion Fatigue Questionnaire (CFQ) established emotional fatigue in 75% of cases and 68.3% of controls and poor Social Support was established in 15.2% of the exposed group. Moreover, the difference amongst the scores of Exposed Group and the Controls were statistically significant ($p=0.04$). The GHQ-28 positive cases showed high scores on IES (33.3% scored above the cut-off score) and CFQ (77.7% reported emotional fatigue) and poor scores on SSQ (17.8% reported unsatisfactory social support).

Conclusions: Care givers and relief workers are at risk of developing psychological distress and compassion fatigue in disaster situations. Inadequate logistics and more than 20 days of stay in the affected areas are associated with increased risk of traumatisation that is palpable even after a period of 10 years. Adequate disaster management planning is necessary to facilitate performance of the relief workers and prevention of secondary traumatisation.

Keywords: earthquake, secondary trauma, caregivers, mental health, compassion fatigue

Introduction

On 8th October 2005 an Earthquake measuring 7.6 on the Richter scale struck Azad Jammu and Kashmir and the Northern Areas of Pakistan. The psychosocial consequences were in no way less than the massive loss of lives and property and the physical injuries and maladies that followed the disaster. A large number of health carers from across the country and around the world converged to undertake this massive health care operation. After the initial few weeks, reports of psychological symptoms amongst health professionals, volunteers and rescue workers started to surface. The psychiatric morbidity seen amongst the carers and the disaster rescue workers is termed as "Secondary Trauma" and has been reported earlier in rescue workers of Tsunami, Bam and 11 September 2001 bombings. There are also reports of long-term, severe post-traumatic stress effects upon community residents involved in rescue work as secondary

victims after exposure to disaster.¹ Though rescue and emergency personnel develop Post traumatic Stress Disorder but its susceptibility is countered by selection, a natural 'hardiness', training and, where it prevails, a supportive environment post-incident.² There are high levels of physical and mental symptoms and 'burnout' among health care workers, which is associated with longer service, less recovery time (between critical incidents) and more frequent exposure to such incidents.³ Another study of post-traumatic stress disorder and other psychopathological symptoms in 56 ambulance workers also showed significantly high levels of symptoms in over two-thirds of the cases.³ Psychosocial interventions focusing on secondary trauma may be particularly useful in reducing traumatic stress symptoms and enhancing psychological preparedness against future disasters.⁴ A recent study of the impact of the Asian Tsunami on media workers provides support for the need to address the emotional aftermath of impact on media workers in the wake of disasters.⁵

The two tertiary care facilities of Pakistan Army, at Rawalpindi, namely Military Hospital (MH) and Combined Military Hospital (CMH) Rawalpindi were actively involved in the provision of health care in the earthquake affected areas from day one. They worked in close liaison with local and international health agencies and are still in professional link with them. Many of these agencies are staying in the affected areas for another one and a half to two years, notably, Turkish Red Crescent Society. While a large number of carers performed the duties in the affected areas and cared for the earthquake affected sick and wounded, a large number of their colleagues were performing routine medical and surgical workload of the two facilities at their home base and remained unexposed to the earthquake affected, population. The setting of the two hospitals and local Pakistani volunteers working in Turkish Red Crescent, provided an ideal setting to study the frequency and patterns of secondary trauma through a case control study. The participants over a period of 10 years got posted and transferred to other cities and hospitals. They were tracked down using a central database for whereabouts and current location of these participants. They were initially contacted on telephone and briefed about the study project. Informed consent was obtained. This study was initially conducted in MH Rawalpindi and CMH Rawalpindi, from where carers were dispatched to the earthquake struck areas of Bagh, Balakot, Muzaffarabad, Rawlakot and Chakothi.

Subjects and methods

An observational study was carried out in the Department of Psychiatry, Military Hospital Rawalpindi and those Departments of CMH and MH Rawalpindi which were involved in relief work for the victims of the Earthquake of 8th October 2005 in the Northern parts of Pakistan. During the relief operation a total of 250 doctors and 600 paramedics were involved but about 150 doctors and 300 paramedics were detailed on duties for more than a month. Of these, 92 health care providers were subjected to evaluation and their age and gender matched controls were also evaluated using the same evaluation techniques. There were 90 controls who were not involved in the relief operation at any time during the disaster relief work. Only Pakistani nationals who gave consent to participate in the study were included. It was ensured to exclude health professionals who were suffering from any physical ailment or general medical condition, Grief or Major Loss in last one year, currently using a depressogenic drug or any psychotropic drugs or any psychoactive substance. The participants were approached through the heads of their organizations after the lapse of this time period and were assessed in group setting. The participants over a period of 10 years got posted and transferred to other cities and hospitals. They were tracked down using a central database for whereabouts and current location of these participants. They were initially contacted on telephone and briefed about the study project. Informed consent was obtained. Subjects were administered General Health Questionnaire 28 (GHQ-28) and Impact of Event Scale (IES), Coping and Social Support Questionnaire and Compassion Fatigue Questionnaire.

Psychometric instruments used

General health questionnaire

28 (GHQ-28) is comprehensive screening instrument to find out the caseness for psychiatric morbidity. Developed in 1979 and modified in 1982, it has 4 subscales, namely, Somatic symptoms,

Anxiety and Insomnia, Social dysfunction and Severe Depression. It has a 60 item, a 12 item and a 28 item version, widely practiced and in use in trauma research. Of the 28 item version used in this research, generally used cut-off score is 7 but in smaller cohorts a lesser score is recommended. The authors have used the score of 4 as significant in this study. A score of 13 or above is usually indicative of psychiatric morbidity. Since we were looking for the vulnerabilities in the group, GHQ-28 was the most suitable instrument.⁶

Impact of event scale

(IES-R) is a self-administered scale and measures the impact of any significant event in a person's life on a scale of 0 to 5; 0 being 'not at all' and 5 being 'often'. The test carries high reliability i.e. 0.86 (Horowitz). Although the test carries a high internal consistency for its subscales (intrusion and avoidance with Cronbach alpha of 0.78 and 0.82, respectively) it is not recommended for measuring PTSD. We used the instrument in our project for the purpose of measuring the brunt of the trauma of working in a disaster area. A score of 40 and above was considered positive for impact of the earthquake.⁷

Compassion fatigue questionnaire

(CFQ) is a self-reporting questionnaire with 19 questions that require subject to make responses from amongst the 5 options i.e. never, at times, not sure, often and very often. This instrument has been widely used in the evaluation of rescue workers, police, fire fighters and soldiers and gives a relatively sound assessment of the level of "burn out" of the person. The subjectivity of this instrument is compensated by the other psychometric tests used in the study, thereby, providing an overall fair assessment of the individual's level of fatigue. Based on the total score the individual can be classified into having either 'no fatigue', 'mild fatigue', 'moderate fatigue' or 'severe fatigue'.⁸

Social support questionnaire

(SSQ) is again a self-reporting instrument with 14 questions designed to evaluate various relationships, support seeking behaviour and social coping strategies. The subject is required to make one of the following responses: Strongly agree, agree, slightly agree, slightly disagree, disagree and strongly disagree. Each response is coded with a number, 1 to 6, respectively, which are summed up to get a final score. A score of ---- is taken as 'poor support', ---- as 'unsatisfactory support', --- as 'satisfactory support' and ---- as 'good support'.⁹ All subjects showing any kind of psychiatric morbidity arising after the provision of care to the victims of earthquake were categorized as having Psychiatric morbidity and those who did not exhibit any psychiatric morbidity were categorized as without Psychiatric morbidity. All caregivers were assigned an Index Number. Those who displayed Psychiatric morbidity were assigned letter 'P' while health care providers without Psychiatric morbidity were designated as 'A'.

Data analysis procedure

All the data was entered in Statistical Package for Social Sciences (SPSS) version 10.0 and was analysed for Descriptive statistics. Categorical variables include M:F(Sex), years of experience and Marital status, for demographic details. The caregivers displaying psychiatric morbidity (P) and those without psychiatric morbidity (A) were compared. Case-ness of GHQ-28 was compared with scores of IES. IES scores for non-cases (A) were also subjected to similar test to establish statistical significance (p value of ≤ 0.05).

Results

A total of 92 health care providers who worked in earthquake affected areas were selected for the study. Mean age of the group was 28 years. 86.9% caregivers were married and majority (73.9%) belonged to middle class, 19.56% to the upper class and only 6.5% belonged to the lower social class. 73.9% carers had nuclear family support. Bagh, Rawlakot, Muzaffarabad and Balakot were the affected areas where these carers spent a mean of 27 days. GHQ-28 'caseness' was present in 79.3% of this group (Table 1) (Figure 1). 27.1% of the carers scored above the cut-off score of 35 (Total Score=35; Subscale Intrusion score 20, Subscale Avoidance score 15) on Impact of Event Scale, thereby implicating psychological distress (Table 1) (Figure 2). Total of 15.2% carers had poor or unsatisfactory social support, as evaluated through the Social Support Questionnaire (SSQ) (Table 1) (Figure 3) and 69 individuals (75%) reported Compassion Fatigue

Table 1 Comparison of 'Exposed' and 'Control' groups

Total	Batch 05 (exposed) (n ₁ = 92)	Batch 06 (control) (n ₂ = 95)
Married	80	75
Middle class	68	79
Nuclear family type	52	61
Mean no of days spent in affected areas	21	0
Mean no of days spent in affected areas	27	0
GHQ-28 case-ness	27	2
GHQ-28 +Ve state	47	1
IES +Ve Impact	25	1
SSQ-Unsatisfactory	14	3
CFQ-mild fatigue	69	65
Mean no of days spent by GHQ-28 +Ve cases	47	0
Mean no of days spent by GHQ-28 healthy	16	0
Mean no of days spent by GHQ-28 +Ve Psy cases	27	0

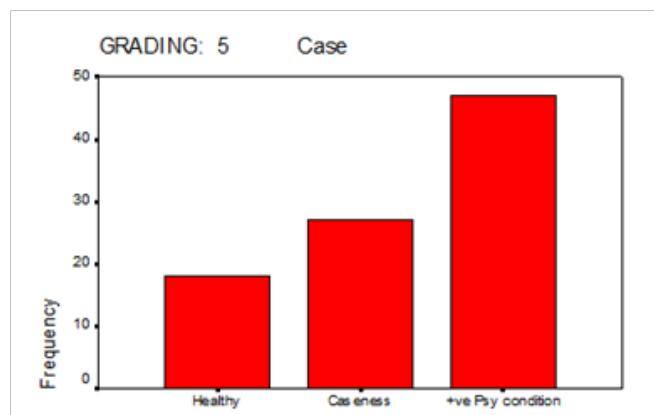


Figure 1 General health questionnaire.

The results indicate that most of the demographic parameters of the two groups were similar. Although Compassion fatigue was seen almost equally in sample and controls, the difference in the scores of GHQ-28 of the two groups was highly significant (p=0.02), with high

as evaluated through the Compassion Fatigue Questionnaire (CFQ) (Table 1) (Figure 4). Individuals who showed 'caseness' on GHQ-28 spent a mean time of 47 days in the affected areas, as against the GHQ-28 'healthy' group, who spent an average of 16 days (Reference Table 1). Those who scored positive for 'caseness', on GHQ-28, also scored high on CFQ and IES. (Table 2). There were 95 controls that were carers but did not work in earthquake areas. Their mean age was 27 years and majority were married (78.9%). Socioeconomically 79(83.1%) belonged to middle class, 11(11.9%) to the upper class and 5(5.4%) to lower social class. Sixty one (64.2%) caregivers had nuclear family support. GHQ-28 showed 'caseness' in 1 individual (Table 1) (Figure 5). Only 1(1.05%) of the controls scored above the cut-off score on IES (Table 1) (Figure 6) and only 3(3.15%) reported unsatisfactory social support (Table 1) (Figure 7). Compassion Fatigue was found in 64(68.4%) of the controls (Table 1) (Figure 8).

level of 'caseness' amongst the 'exposed group'. Also the difference of scores of IES in the two groups was statistically significant i.e. p=0.01, the 'exposed group' showing higher level of psychological distress (Table 1).

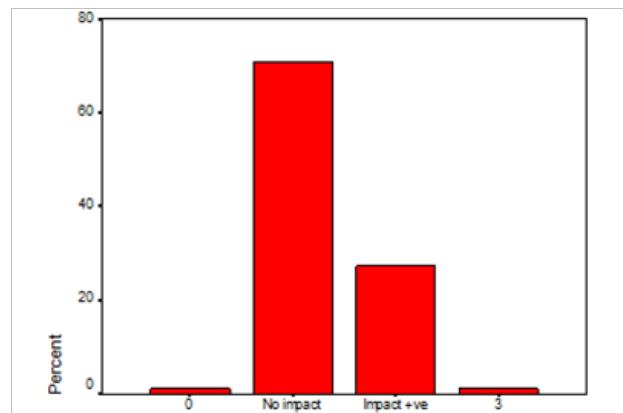


Figure 2 Revised impact of event scale.

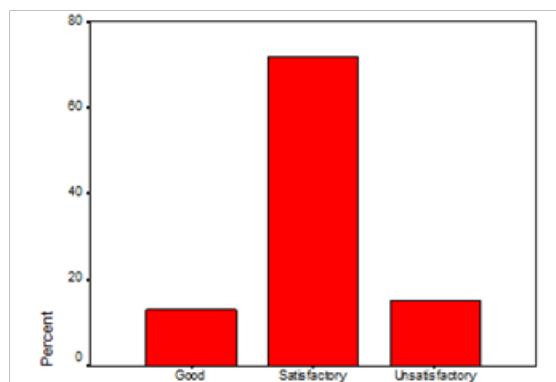


Figure 3 Social support questionnaire.

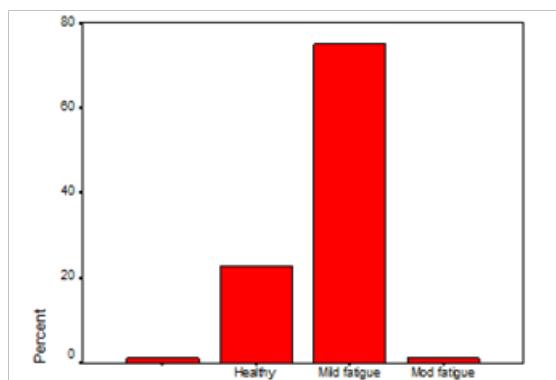


Figure 4 Compassion fatigue questionnaire.

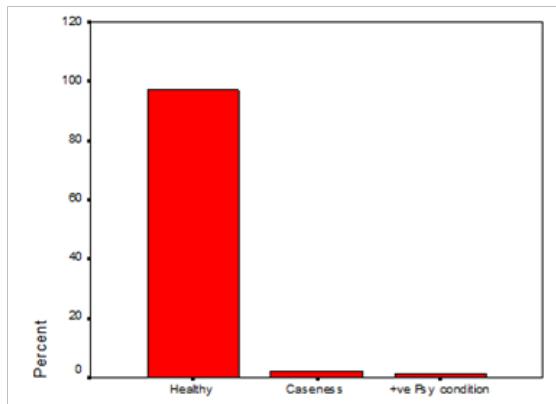


Figure 5 General health questionnaire.

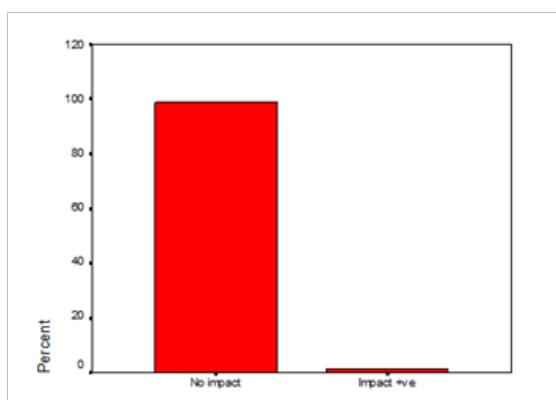


Figure 6 Revised impact of event scale.

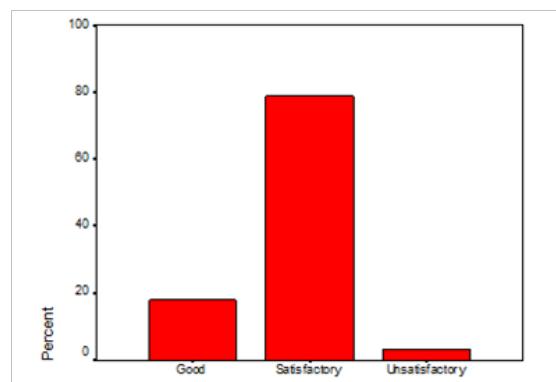


Figure 7 Social support questionnaire.

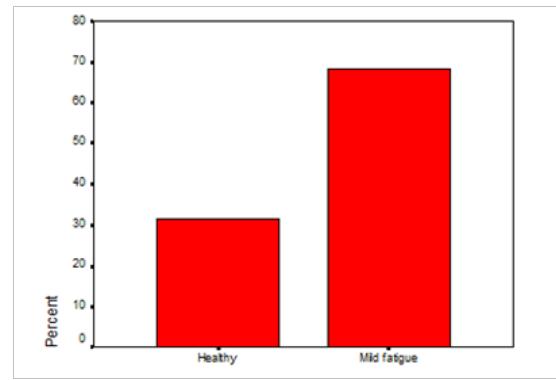


Figure 8 Compassion fatigue questionnaire.

Table 2 Frequencies of various evaluation scores amongst GHQ-28 positive cases (P)

GHQ-28 positive Cases n=73

SSQ unsatisfactory	13(17.8%)
Satisfactory	56(76.7%)
Good	4(5.5%)
IES +impact	25(33.3%)
No impact	49(66.7%)
CFQ mild fatigue	56(76.7%)
Mod fatigue	1(1.4%)
Healthy	16(21.9%)
GHQ cases	26(35.6%)
Pos psy cond	47(64.4%)

The GHQ-28 positive cases (P) also showed higher scores on IES and CFQ as compared to the GHQ-28 negative cases (Table 2). SSQ scores showed that both 'exposed' and the 'control' groups had satisfactory social support in majority of the cases (>75%) (Table 1). The GHQ-28 positive group (P) showed compassion fatigue in 56 (76.7%) of the individuals and the non-exposed controls also showed high level of compassion fatigue, as 65 (68.4%) of these individuals scored positive on CFQ (Table 2) (Table 1).

Discussion

This study was undertaken as part of evaluating the Emergency Psychosocial and Mental Health Programme as a longitudinal

research post-earthquake. Doctors and paramedics who had already been working in the disaster hit areas were re-enforced with fresh teams and surgical equipment. The doctors and paramedics who participated in the study were all trainees and residents from various specialities (medicine, surgery, paediatrics, psychiatry, dermatology) and were already consumed in their busy training schedules. All of them were unprepared for the disaster situation and most of them reported in the affected areas with uncertainty of duration of duty, meagre medical supplies, inadequate evacuation resources, poor living conditions, harsh climatic conditions, stress of being away from families and having no contact with them, working with mass casualties, witnessing grotesque human suffering and a general lack of information in various aspects of the disaster. All these variables are established risk factors for psychological and traumatic stress. Just as most individuals directly exposed to a traumatic stressor exhibit some PTSD symptoms that abate quickly over time, many clinicians will have transitory reactions to survivor narratives. Yet in both primary and secondary trauma exposure, a small percentage of individuals will develop the full psychiatric disorder. The literature on secondary traumatization among health care professionals is scarce, though theorists such as Figley,¹⁰ McCann and Pearlman,¹¹ and Stamm¹² have reported on the phenomena of secondary traumatization. Review of Psychlit journal articles found only 17 peer-reviewed articles on secondary traumatization. Of these, only 12 contained data, and the majority of these were descriptive (qualitative) in nature.

Most studies yield evidence about correlates of secondary trauma symptoms. The most frequently studied correlate is the therapist's personal trauma history. Jenkins et al. found that personal trauma history correlated with secondary trauma symptoms.¹³ The key components of secondary trauma prevention might be found within practice systems.¹⁴ Echoing this sentiment, Pearlman et al.¹⁵ stated that four domains are important for the prevention of secondary traumatization in mental health care providers:

1) professional strategies, such as balancing caseloads and accessible supervision; 2) organizational strategies, such as sufficient release time and safe physical space; 3) personal strategies, such as respecting one's own limits and maintaining time for self-care activities and 4) general coping strategies, such as self-nurturing and seeking connection. The results of the present study are generally synonymous with the literature. The fact that majority of the demographic variables had no difference between the 'exposed' and the 'control' group indicates that demography plays little role in the psychological distress amongst care-givers. However the number of days spent in the disaster affected areas is seen directly proportional to the scores of GHQ, IES and CFQ, thereby highlighting a linear relationship between psychological distress and duration of exposure to the disaster scenario.

The psychological distress and morbidity in the 'exposed' group also exhibited higher levels of impact of the event and higher levels of compassion fatigue, thereby indicating the relationship of these three variables. Incidentally these were cases that had spent a mean 47 days in the affected areas. Although no subjective accounts of the care givers were taken but most subjects were unsatisfied with the organization, logistics and implementation of the relief programme and found it full of uncertainties, compounded by the tiring requirements put forth by the affected population. These findings in a longitudinal perspective suggest a high level of secondary traumatization amongst the 'exposed' group. The group of people involved in the relief work hold certain peculiarities which put them at risk of traumatization.

These include the trainee and resident status of the doctors, who were already undergoing a very hectic and tiring work routine in the hospital before they were sent in for the relief work. Most of the factors associated with this morbidity pertain to inadequate planning of the disaster management, logistic problems, longer duration of stay in the affected areas, unpredictability about the duration of stay and witnessing death and destruction at a morbid level.¹⁶⁻²²

Acknowledgements

None.

Conflict of interest

The author declares no conflict of interest.

References

1. Chung MC, Easthope Y, Farmer S, et al. Psychological sequelae: Post-traumatic stress reactions and personality factors among community residents as secondary victims. *Scand J Caring Sci.* 2003;17(3):256-270.
2. Alexander DA, Klein S. *The epidemiology of PTSD and patient vulnerability factors.* The medicine publishing company Ltd; 2003. p. 22-25.
3. Alexander DA, Klein S. Ambulance personnel and critical incidents, Impact of accident and emergency work on mental health and emotional well-being. *British Journal of Psychiatry.* 2001;178(1):76-81.
4. Alexander DA, Klein S. Caring for others can seriously damage your health. *Hospital Medicine.* 2001;62(5):264-67.
5. Sin SS, Chan A, Huak CY. A pilot study of the impact of the Asian Tsunami on agroup of Asian media workers. *Int J Emerg Mental Health.* 2005;7(4):299-305.
6. 28 item version, Goldberg. *General health questionnaire -28, measures in PTSD: a practitioner's guide.* Stuart Turner: 1997. p. 12-16.
7. Horowitz. *Impact of Event Scale; Measures in PTSD: A practitioner's guide.* Stuart Turner: Springer; 1979. p. 23-27.
8. Compassion Fatigue Questionnaire
9. Irwin G Sarason McDowell I, Newell C. *Measuring health; social support questionnaire.* New York: Oxford University Press; 1996
10. Figley CR. *Compassion fatigue as secondary traumatic stress disorder: an overview.* In: *Compassion Fatigue: Coping with secondary traumatic stress disorder in those who treat the traumatized,* Figley CR, editors. New York, USA: 1995.
11. McCann IL, Pearlman LA. Vicarious traumatization: a framework for understanding the psychological effects of working with victims. *J Trauma Stress.* 1990;3(1):131-149
12. Stamm BH. *Secondary Traumatic stress: self-care issues for clinicians, researchers, and educators.* Lutherville: Sidran Press; 1995.
13. Jenkins SR, Baird S. Secondary traumatic stress and vicarious trauma: a validation study. *J Trauma Stress.* 2002;15(5):423-432.
14. Herman JL. *Trauma and recovery: the aftermath of violence from domestic abuse to political terror.* New York: Springer; 1992.
15. Pearlman LA, Saakvitne KW. *Trauma and the therapist: countertransference and vicarious traumatization in psychotherapy with incest survivors.* New York: Springer; 1995.
16. Figley CR, Kleber RJ. *Beyond the 'victim': Secondary traumatic stress.* In: Gersons BPR editors. *Beyond Trauma,* New York: Plenum press; 1995.

17. Felton. Health risk behaviors of rural sixth graders. *Research in Nursing and Health*. 1998;21(6):475–485.
18. Alexander DA, Klein S. Caring for others can seriously damage your health. *Hospital Medicine*. 2001;62(5):264–267.
19. Howie JH. *General practitioners; work and stress In: stress management in general practice*. Royal College of General Practice. London: 1993. 28 p.
20. Beaton R, Murphy S, Johnson C, et al. “Coping responses and posttraumatic stress symptomatology in urban fire service personnel”. *J Traumatic Stress*. 1999;12(2):293–308.
21. James A, Wright PL. Occupational stress in the ambulance service. *Work Stress*. 1991;2:319–26
22. Ramirez AJ, Graham J, Richards MA, et al. Mental health of hospital consultants: the effects of stress and satisfaction at work. *Lancet*. 1996;347(9003):724–728.