ORIGINAL ARTICLE

Issues affecting health professionals during and after catastrophic earthquakes in Van-Turkey

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Abstract

Objective: To assess physical and psycho-social problems faced by health professionals, and to analyse the ethical, legal and triage dimensions of disaster medical services.

Methods: The descriptive study was conducted from November 2011 to March 2012 and comprised health professionals from two hospitals of Van, Turkey A specific questionnaire was designed and interviews were conducted face to face. SPSS 13 was used for statistical analysis.

Results: Of the 430 health professionals who had experienced one or more earthquakes and were part of the study, 225(52.3%) were nurses and 205(47.7%) were doctors. There were 224(52%) women and 206(48%) men. Besides, 206(48) were below 31 years of age. Overall, 193(44.9%) participants experienced chaos, 83(19.3%) panic and fear, and 129(30%) despair. Only 20(4.7%) of them lived at home, while others lived in tents, containers, hospitals or cars during the emergency and continued to provide services despite social, economic and psychological problems. Triage was preferred by 339(78.8%) of the respondents.

Conclusion: Problems of health professionals were multi-dimensional and addressing them would make service delivery more effective.

Keywords: Earthquake, Health professionals, Triage, Ethics. (JPMA 66: 129; 2016)

Introduction

Earthquake, one of the most destructive natural disasters, is considered to be a global problem.[1] Earthquakes have occurred constantly all over the world, notably in Latin America, Indian subcontinent and other parts of Asia, Middle East and southern Europe. There appeared earthquakes of intensity between 7-8.8 on the Richter Scale between the years 2000 and 2012.[1] Turkey is one of the countries whose largest part has been damaged by earthquakes and 98% of the population lives in these earthquake-hit areas. Earthquakes in the province of Van in 2011 resulted in many deaths and injuries. The first of these earthquakes hit the area on October 23 at 13.41 according to local time, centred in Van-Tabanli village with 7.2 Moment Magnitude (Mw) and lasted about 29 seconds. During this earthquake, more than 1000 people were injured and 604 people died. Buildings were severely damaged and 252 people were rescued from the wreckages.[2] The second earthquake occurred on November 9 at 21.23 with a magnitude of 5.6Mw in Van-Edremit district, leaving 40 dead.[2] According to official records, after earthquakes 1,966 people were injured, 644 people died and 252 were rescued from the wreckages.[2]

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After the first two earthquakes, together with the ill and the injured, most of the earthquake victims were evacuated to other cities. However, health professionals tried hard in the regional or in field hospitals to look after the victims living in tents, containers and cars and those who did not want to leave the province of Van and its districts.

The health professionals giving health services to earthquake victims tried to take legal regulations into account like triage, ethics and patient rights. Triage is a dynamic process including the initiation of the proper treatment straight away by determining the intensity of injuries threatening the lives of the injured and patients.[3] In Turkey, as in any other country, the colours of red, green, yellow and black are used in triage system. Medicine ethics helps people to receive health services without facing any kind of humiliation, within the framework of their free wills and decisions. Medicine ethics include principles of non-maleficence, beneficence, autonomy, justice and privacy.

The current study was planned to determine the problems and troubles of the health professionals while they were providing health services, and to understand the triage, ethics and legal regulations during the medical treatment processes. During literature review, it was noted that there exists no study focusing on the problems of the health professionals exposed to the negative

effects of earthquakes. Our study, as such, could contribute to the process of guiding health professionals who are essential actors in disaster management.

Subjects and Methods

The descriptive study was conducted from November 2011 to March 2012 and comprised health professionals from two hospitals of Van, Turkey. We planned to include all health workers in Van, but only two hospitals were in service as the other four were closed due to the damage they had during the earthquake.

After a pilot study, the specifically designed questionnaire was distributed among the health professionals. The questionnaire included 20 questions about demographic characteristics, medical, psychological, socio-economic problems, shared traumas, earthquakes, the triage and ethical dimension of the health services.

The data was analysed using SPSS 13.

Results

Initially, 483 health professionals were enlisted, but some of them left Van for personal reasons and the final study sample had 430(89%) subjects. Of them, 225(52.3%) were nurses and 205(47.7%) were doctors; 224(52%) were women and 206(48%) were men; 206(48) were below 31 years of age. The overall mean age was 32.10±6.6 years (range: 20-52 years). Further, 215(45.5%) participants worked in a university hospital, while 119(46.3%) worked in public hospitals; 104(24.2%) had been working for 0-3 years, 133(30.9%) for 4-7 years, 106(24.7%) for 8-11 years and 87(20.2%) for over 12 years Overall, 118(27.4%) participants had experienced only the first earthquake, 24(5.6%) had experienced the second earthquake, while 199(46.2%) had experienced both the earthquakes. Of the total, 189(44%) participants had experienced an earthquake disaster before, 91(21.2%) had experienced flood, 31(7.2%) had experienced conflagration, and 119(27.6%) had experienced other disasters (Table-1).

In terms of medical, psychological and economic problems, 193 (44.9%) participants felt chaos, 129(30%) desperation, 83 (19.3%) had fear of death, while 25 (5.8%) felt nothing during the earthquake.

When medical and psychological treatments were examined after the earthquake, 379(88.2%) participants did not get any treatment, 30(7%) had medical treatment, while 16(3.6%) had psychological and 5(1.2%) had both medical and psychological treatments. In terms of shelter, 187 (43.5%) subjects stayed in tents or cars, 129(30%) in hospitals, 24(5.6%) lived in containers, 56(13%) in their own houses and 34(7.9%) left the city.

After the second earthquake, 53(12.3%) participants left the city, 188(43.7%) stayed in tents, 93(21.6%) in containers, 20(4.7%) lived in their house and 76(17.7%) lived in hospitals - doctor's room etc.

The income of participants was between $1,000 and $3,000 (US$=1.7 Turkish Lira). Of the participants, 62(14.4%) spent between $550 and $2,750, 125(29.1%) between $4,500 and $6500, 127(29.5%) between $2,750 and $4,500, 61(14.2%) between $6,500 and $8,500, and 55(12.8%) spent over $8,500 for expenses.

With respect to organizational aid, 349(81.2%) participants did not get any help or aid from formal and

Table-1: Socio-Demographic Characteristics.

Gender	**N (%)**	**Age**	**% (N)**
Women	224 (52.1)	Below 31	47.9 (206)
Men	206 (47.9)	31 and over	52.1 (224)
Operating time	**N(%)**	**Institute**	**N (%)**
0-3	104 (24.2)	Hospitals of Ministry	199 (46.3)
4-7	133 (30.9)	University Hospital	215 (50.0)
8-11	106 (24.7)	Private Hospitals	16 (3.7)
12 and over	87(20.2)		
Health Professionals	**N (%)**	**Participants experienced disasters in the past**	**N (%)**
Professor	9 (2. 0)	Flood	91 (21.2)
Associate Professor	11 (2.6)	Earthquake	189 (44.0)
Assistant Professor	46 (10.7)	Conflagration	31 (7.2)
Dr./Research Assistant Dr.	139 (32.4)	Other	119 (27.7)
Nurse	225 (52.3)		
Earthquake Magnitude	**N (%)**		
Only 7.2 Mw	118 (27.4)		
Only 5.6Mw	24 (5.6)		
7.2 Mw, 5.6Mw	46.2 (271)		

Table-2: Medical, psychological and economic problems.

Emotions experienced After the Earthquake	**N (%)**	**Medical and Psychological treatments after the Earthquake**	**N (%)**
Chaos	193 (44.9)	Medical treatment	30 (7.0)
Death anxiety, horror /panic	83 (19.3)	Psychological treatment.	16 (3.6)
Despair	129 (30.0)	Medical, psychological treatment.	5 (1.2)
Nothingness	25 (5.8)	I felt nothing.	379 (88.2)
After first earthquake			
Housing problems	**N (%)**	**After 2nd earthquake**	**N(%)**
I lived in my house.	56 (13,0)	I live in my house.	20 (4.7)
I lived in tent or auto	187 (43.5)	I live in tent	188 (43.7)
I lived in container	24 (5.6)	I live in container	93 (21.6)
I lived in hospital.	129 (30.0)	I lived in hospital.	76 (17.7)
I left city immediately.	34 (7.9)	I left city immediately. After I came back again.	53 (12,3)
Economic costs caused by the earthquake	**N (%)**	**Clothing, blankets… Did you get any help by some of the organizations below?**	**N(%)**
550-2750$	62 (14.4)	TTB and	27(6.3)
2750-4500$	127 (29.5)	NGO	22 (5.1)
4500-6500$	125 (29.1)	Municipality	25 (5.8)
6500-8500$	61 (14.2)	International professional organization	7 (1.6)
Who helped your family	**N (%)**	**Traumas of participants**	**N (%)**
Relatives.	298 (69.3)	Economy - psychosocial	58 (13.4)
Nobody	120 (27.9)	Ground failure trauma	293 (68.1)
Government organization	12 (2.8)	Psychosocial	79 (18.4)
Sharing trauma	N (%)		
Speaking- inhabitants of earthquake	146 (34.0)		
Sharing with friends	214 (49.8)		
I didn't share.	30 (7.0)		
Friends-virtual media	40 (9.3)		

TTB: NGO:

Table-3: Trying to eliminate problems and issues of people after the earthquakes.

After Earthquake I went to hospital	**N (%)**	**To help injured, eased my earthquake problems.**	**N (%)**
1-3 hour	181 (42.2)	My negative feelings increased my energy.	145 (33.7)
4- 7 hour	129 (30.0)	I felt myself better.	167 (38.9)
The next day	61 (14.2)	My anxiety wasn't diminished.	118 (27.4)
I didn't go to hospital.	59 (13.7)		
Treatment groups: Patients and injured	**N (%)**	**Treatment scale**	**N (%)**
Only, adults, elderly	28 (6.5)	Triage Scale (S.T.A.R.T)	183 (42.5)
Children	49 (11.4)	Triage and ethics principles	156 (36.3)
child, adult, elderly	202 (47.0)	All patients were treated.	91 (22.2)
Special	151 (35.1)		
Earthquake period and ethics principles	**N (%)**	**To more effective health service**	**N (%)**
Non-maleficence	164 (38.1)	Disaster medicine education for health professionals	65 (15.2)
Beneficial	198 (46.0)	Disaster education health and NGO's members.	32 (7.4)
Justice	39 (9.1)	Disaster medicine education and practice.	69 (16.0)
Autonomy	19 (4.4)	Active participation of health employees table of disaster crisis.	264(61.4)
Privacy	10 (2.3)		

START: Simple triage and rapid treatment.

informal corporations and foundations, 27(6.3%) got help from medical associations, 22(5.1%) from non-governmental organisations (NGOs), 7(1.6%) received blankets and clothes from international organisations. Besides, 298(69.3%) participants got help from their relatives, 120(27.9%) got help from nobody, while 12(2.8%) got help from governmental organisations.

Overall, 293(68.1%) participants agreed that the most common post-disaster trauma was psychological trauma, 79(18.4%) psycho-social, while 58(13.4%) faced psychosocial and economic trauma. Besides, 146(34%) participants shared their earthquake experience with other earthquake victims, 214(49.8%) with their friends, 40(9.3%) with their friends in virtual media, while 30(7%) did not share it with anyone (Table-2).

Furthermore, 181(42.2%) participants went to a hospital in 3 hours, 129(30.0%) between 4-7 hours, 59 (13.7%) next day, while 59(13.7%) did not go to hospitals for help. When explored further, 145(33.7%) participants said "my negative feelings increased my energy" by helping the wounded; 167(38.9%) said "I felt better"; 118(27.4%) said "my anxiety was not diminished."

In terms of treatment scales, 183(42.5%) participants said simple triage and rapid treatment (START) scale was more significant than ethical principles, 156(36.3%) applied both triage and ethical principles, and 91(22.2%) helped all the victims regardless of triage and ethical principles.

Healthcare providers were faced with other ethical dilemmas in the aftermath of the earthquake. They took some ethical principles into account and 198(46%) said they considered them "beneficial", 164(38.1%) indicated "non-maleficence", 39(9.1%) took "justice" into account, 19(4.4%) autonomy, and 10(2.3%) took only privacy into account.

Of the total, 264(61.4%) participants answered the question about effectiveness of post-quake health services, with 69(16%) believing that disaster medical training and application would be more effective, and 65(15.2%) of the belief that disaster medical training would be the answer to many problems (Table-3).

Discussion

Earthquake is accepted as a global problem which causes trauma. One of the main reasons of this statement is that it destroys or changes the physical state of the regions by damaging the buildings and even the roads and destroying the familiar socio-cultural environment.[3] People are faced with losing their jobs, houses and belongings. Essential requirements emerge such as hygiene, food, sheltering, etc. However, the most important post-quake problem was sheltering And 95.3% of the health professionals in the current study had to stay in cars and containers and tried to help victims in such places. Instead of tents and containers, pre-fabricated houses and hospitals were more effective in terms of the quality of health services as there occurred heating problems in the post-quake process. Disasters such as epidemics and flu emerged and electrical ovens and heaters caused fires in tents.

The health professionals also had to spend extra $500-8,000 (their monthly salary was about $1,000-$2,750) because of earthquakes and only 18.8% received help from NGOs. Ministry of Health supported those who were employed in the earthquake region for 6 months.

Studies indicate that psychological problems and post-traumatic stress disorders emerge intensely.[3-5] It is also pointed out in literature that 99.2% of health professionals felt fear, anxiety, numbness, sense of suffocation, loneliness, lack of confidence. In addition to anxiety about future and loss of working desire, they also made self-criticism and questioned the meaning of life.[4-7] Despite all the negative emotions, the health professionals in the current study preferred to focus on finding solutions to problems; 68% treated victims in hospitals, tent hospitals, and tents right after the earthquake; 67.5% felt better and forgot about their own problems in that process. Focusing on problem-solving rather than focusing on just the problems has always proved to be more effective. This approach is a method of coping with problems.[8] The most important factor of this statement is that helping other victims and sharing earthquake experiences removed the anxiety by neutralising the negative emotions.[8]

Social support was provided by either relatives of the victims or by the government. As family relations are cordial in Turkey, 74% of health professionals sent their families to other cities where their relatives lived, 3% sent their families to state guesthouses. This kind of social support did not satisfy the health professionals. They also declared in World Extreme Medicine Conference opening statement that social support should be subsidised in case of disasters such as war, terror and natural disasters.[9,10] Studies have stated the importance of social support for post-fire victims.[10,11] In order to eliminate or ease post-disaster traumas, multi-disciplinary evaluation and support should be provided.[11]

These problems show that health professionals and public share the same substantial problems during disasters in terms of accommodation, hygiene, food and

security. These problems are the same as those experienced in post-quake period in other countries. However, as was the case in post-quake period in Van, though the health professionals continued to provide health service eagerly with the psychological relaxation for helping others, they could provide better service if their needs such as shelter, hygiene, foods, humidity, heat/cold, noise, and their own family needs were met. Health professionals made great efforts to help victims in the face of difficulties, their own issues and professional conflicts.[12]

Another important factor of the research was about triage and ethical principles. In Turkey, triage application exists in emergency services and post-disaster services in accordance with the global standards.[13] After the earthquake, 79% health professionals applied triage with the suggestions of specialists. The triage time was 1.23 seconds. This is a positive attitude, but considering ethical principals in addition to triage would have been more effective. As for the questions about ethical principles, 46% health professionals said the principles were useful in case of emergency, 38% said they did not cause any harm to other victims. These results are in accordance with the reasons for triage. Besides, 84% participants preferred beneficence and non-maleficence principles during health services. The results show that triage application was quite high (78.8%). This rate is parallel with the results suggesting the importance of pragmatic benefit of triage.[13,14] In this context, they are parallel with the approaches in the earthquakes that hit Haiti, Iran and Japan.[6,7,11] That is, the principle "to do the most good for the most people" with triage was shown in the applications.[14]

However, other principles made use of were 9.1% justice, 4.4% self-determination and 2.3% privacy. Ethical principles and applications were formed in terms of human rights, democracy, and human dignity. These results are positive in terms of triage and emphasise such values as self-dignity, justice, informed consent, privacy. In studies, it is clear that triage causes serious ethical concerns.[15] Ethical applications emphasise informed consent, right to decide for the treatment, caring about privacy, and doctor-patient relationship. In this respect, especially in emergency services, triage is accepted but ethical principles are ignored. Consequently, doctor-patient relationship fails and self-determination of the patient is ignored.[15-17] A more detailed disaster health plan will ease the problems about triage and ethics. Participants stated that there existed a disaster plan and application, but they were not active on the disaster crisis table. Besides, 61.4% participants stated that participation in disaster crisis plan would be effective, 16% thought that disaster medical training and application would be more effective, and for 15%, disaster medical training was important.

Triage applications should include ethical applications, trainings and principles with the aim of activating post-disaster health services. A triage application including ethical principles will create a better health service. However, people usually prefer to act conscientiously while it will be effective for the healthcare professionals to consider the situations in a detailed way and act according to the ethical principles as the conscience satisfies the emotions of effectuality and conservation intensively. Therefore, ethical way of thinking will be more efficient than conscience.

For this reason, we questioned the ethical principles one by one. The evaluation in the frame of the ethical principles reveals the deficiencies in the process of treatment. Another important point is that preparing a professional health plan, including the problems about sheltering, hygiene, sanitation and application of this plan, will also ease psycho-social and economic problems.

Conclusion

Healthcare professionals can present better health service in the presence of a disaster plan that may cover arrangements for shelter, hygiene, food as well as socio-economic needs.

Acknowledgement

We are grateful to international and national rescue teams; and to Dr. Miyakaz and Yumeka Ota. We offer condolences to Dr. Miyazaki's family and friends.

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