

RAPID ASSESSMENT OF THE DELIVERY OF MENTAL HEALTH SERVICES TO HEALTHY SURVIVORS OF THE EARTHQUAKE IN BAM, IRAN

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Abstract

Background

Natural disasters cause millions of deaths, disabilities, and huge financial losses worldwide every year. The major concern of our health system has been to reduce physical mortality and morbidity, but we must also recognize that such events are a source of considerable stress for the survivors, causing in many serious and long-lasting psychiatric complications. The purpose of this study has been to assess the function of rescuers in the delivery of mental health services to survivors of the earthquake in Bam, Iran, over the first 2 weeks after the event.

Methods

For our purposes, 2 groups of survivors were selected: the first group included healthy survivors of ≥ 15 years of age living in Bam after the earthquake. The second group is comprised of healthy survivors of < 15 years of age living in Bam after the earthquake.

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According to the settling of healthy survivors in 13 different regions of Bam during the 2 weeks after the earthquake, 6 individuals of ≥ 15 years and 6 survivors of < 15 years were selected from each of these regions, using random sampling procedures. Two weeks after the earthquake, a questionnaire, including questions about demographic data, functions of the rescuers in rescuing and emergency procedures, information for the survivors of their relatives' conditions, and quality of condolence for the survivors was prepared. It also included questions on the existence of facilities for tension relief for the children, to be filled out for each case by trained assessors with a standardized method. The data were analyzed using SPSS software.

Results

In both groups, $> 85\%$ of the cases who needed help from the load of the earthquake were rescued by their relatives, and rescuers from the Red Crescent Society. Help from other governmental organizations accounted for only a small portion (5%) in this field. Only 25% of cases who needed help and rescuing from the load of the earthquake were rescued within the first hour. Only 40% of the cases received sympathy from their rescuers. About 60% of the cases claimed to have had enough information about their relatives. About 40% of the cases were consoled and prevented from crying by rescuers. Only 30% of the cases said that they knew drug-addicted individuals who were not given alternative materials. 23% of the children were playing again during the 2 weeks that followed the earthquake, and 32% of them had some facilities for playing.

Conclusion

Regarding the rescue activities for both groups, primary care had been provided by relatives and domestic people. Therefore general training and organizing of CBOs (Community Based Organizations) for the provision of services in disasters, especially in regions of high risk to earthquake, would certainly help reduce suffering and injuries. According to our research, rescuers are seriously in need of training in mental health provision, and major areas of education needed include, e.g. use of counseling techniques, providing the right kind of information for the survivors, and stress management procedures.

Introduction

A disaster is defined as a disruption of human ecology that exceeds capacity of a community to function normally.¹ A substantial amount of research pertinent to understanding the effects of disasters has been published over the past 20 years.² Specific psychological problems, such as anxiety and depression, and most notably post-traumatic stress disorder (PTSD) were found most often, followed by non-specific psychological distress with varying health problems and concerns.²⁻⁴

Reviewing calamitous earthquakes over the last century in Iran, beginning with the quake in Silakhor in 1909 (magnitude 7.4), reveals that the Iranian plateau is one of the world's most seismically active areas; earthquakes are frequent, destructive, and cause heavy loss of life.⁵

The magnitude of 6.6 for the Bam earthquake struck at 5:26 a.m. local time on December 26, 2003, while most people were asleep in their homes. It destroyed much of the city. The human and physical devastation was staggering, with 41 000 people presumed to be dead, tens of thousands injured, and nearly all survivors among the original 100 000 inhabitants left homeless. Large numbers of injured people were evacuated to hospitals throughout Iran, especially in Tehran and the provincial capital, Kerman, because all major hospital facilities in Bam had been destroyed, and many of their doctors and nurses injured or killed.⁶



This report provides a brief review on the delivery of mental health services to healthy survivors of Bam earthquake living in Bam during the 2 weeks following the earthquake. Two age groups were assessed in this study: i) adults and ii) children (those <15 years of age) who are more prone to psychological issues after a disaster. 7-9

Methods and Participants

In a descriptive-analytic study, we tried to assess the function of rescuers about delivery of mental health services to the healthy survivors of the earthquake over the 2 weeks immediately after the earthquake. According to the settling of healthy survivors in 13 different regions of Bam during 2 weeks after the earthquake, 6 individuals of ≥ 15 years and 6 survivors of <15 years were selected from each region using random sampling procedures. Two individuals in each group refused to participate in the study due to severe anxiety and depression. A questionnaire including the following questions was prepared, which was filled out for each case by the trained assessors with a standardized method:

- 1) Demographic data, including age, sex, marital status, place of living (urban or rural area) before the earthquake, education.
- 2) Quality of rescuing and emergency services delivery, including questions about the interval between the earthquake and the time of rescue, who were the rescuers, and how the rescuers encountered and consoled them.
- 3) Quality of information services delivery to the survivors, including questions about receiving correct information about the situation of their first degree relatives, the interval between the earthquake and the time of receiving the mentioned information.
- 4) Quality of condolence and mental security created by the rescuers, including questions about quantity of condolence by the rescuers, ability of the survivors to open out their hearts.
- 5) For children, existence of facilities for playing and tension relief.

After data collection, their answers were analyzed using SPSS software.

Results

Group A. Adult healthy survivors (≥ 15 years old)

The mean age of the 76 individuals in this group was 41.5 ± 25.3 (Range: 15-65 years). 42(55.2%) were male and 30(39%) of them were married. 38(50%) of individuals in this group were living in rural areas before the earthquake. Only 15(19.5%) had academic (university) degrees. 45 (59.2%) needed rescuing from the load, of which 42 (93.3%) were rescued by their relatives or friends. Also 12 of these 42 individuals (26.6%) said that other natives had a role in their rescue. Table 1 shows the role of the different rescuer groups in rescuing these individuals. Table 2 shows that >50% of the individuals of this group which needed rescuing from the load, were rescued in the first 2 hours after the earthquake.

Twenty two (49%) individuals who needed rescuing from the load believed that rescuers consoled them in a good manner. 19 (42%) of them said that rescuers had talked to them about their inconvenience and they were able to open out their hearts. 37 (82%) said that rescuers had not let them cry; in other words, >80% of them were prevented from tension relief (Table 3). Table 3 also shows that 95.5% of them believed that they have been given unreasonable hope.

Twenty-seven (35.5%) individuals in group A said that rescuers had affronted them during delivery of the emergency services. 16 (21%) individuals in this group remained unaware of their first relatives' situation. Only 28 (37%) individuals in this group said that their place for



rest overnight were sufficiently quiet. 25 (32%) individuals in this group said that they knew ones who were addicts, but who did not receive narcotics or alternative materials.

Group B. Healthy survivors under 15 years old

In this group (n=76), the mean age was 9.5±4.6 (Range: 5-15). The male to female ratio was 2/1.43 (57%) needed rescuing from the load. Of them 30 (70%) were rescued by their relatives or friends, and 7 (16%) were rescued by other natives (Table 1). 55 (72%) of them believed that no one has been concerned about their situation. 4 (5%) of the individuals said that someone had treated them badly or abused them. Only 32 (42.1%) of the children had facilities for playing.

Discussion

Disasters traumatically expose normal populations to severe threats to life, deaths of relatives, and massive environmental destruction. Survivors experience a state similar to that seen in the aftermath of other traumatic experiences, such as rape, kidnapping, automotive and industrial accidents, crime, combat, and internment in concentration camps or as prisoners of war.

This state is characterized by intrusive images, impaired concentration, sleep disturbances, disturbing dreams, trigger anxiety, phobias, anxiety, depression, and rage. 10

A meta-analysis of 52 studies¹¹ showed that the rate of psychopathology was 17% higher in groups that had experienced a disaster than in the same groups before the disaster or in control groups. Higher impairment rates were found for groups that had experienced naturally caused disasters.

In studies from developing countries, psychiatric morbidity has been reported in 75% of victims of a cyclone in Sri Lanka¹², 55% of victims of a volcanic eruption in Colombia¹³, and 40% of people attending primary health care clinics following an earthquake in Ecuador.¹⁴

Youth exhibited additional problems unique to their age groups, such as behavioral problems, hyperactivity, and delinquency, but like adults, they were also vulnerable to PTSD, depression, somatic complaints, and ongoing stress. The high rate of psychiatric disorders found in the survivors of natural disasters, especially earthquakes, indicates the need for provision of mental health services for disaster survivors.²

The residents of the ancient city of Bam in south east Iran slept as 26 December 2003 began. By 5:26 a.m. the city lay in ruins, shattered by an earthquake that lasted just 10s and measured 6.5 on the Richter scale, devastating more than 90% of the city center and historic buildings. The human statistics make chilling reading - over 35 000 people killed, another 23 620 injured (8 028 of them seriously) and almost 20 000 homes destroyed.

Essential services, including water supply, power, telephone, healthcare services, main roads and the city's only airport were crippled. The major tourist attraction in the area, the 2 400-year-old citadel Arg-e-Bam, the world's largest dried clay structure and a world heritage site, was totally destroyed. 15

This study demonstrates the function of rescuers in the delivery of mental health services to survivors (living in Bam after earthquake) during the first 2 weeks after earthquake. Table 1 shows that >85% of those needed rescuing from the load were rescued by their relatives or friends and also other natives, and only 5% were rescued by rescue workers of the Red Crescent Society or other governmental organizations. This point leads us to call for more and better education about confronting disasters for inhabitants in such vulnerable areas. Also,



creating non-governmental organizations for partnership of general population in helping injured individuals in disasters will be most effective. This may decrease the extent of the damage.

According to the contents of Table 2, ~25% of individuals in group A who needed rescuing from the load were brought out in the first hour after the earthquake, which shows that planning for facing to crisis and first aid should be undertaken more seriously. In a similar study, immediate rescuing and rapid hospitalization were shown to be effective in reducing mortality and morbidity in disasters. 16

In group A, about 40% of the individuals who needed rescuing from the load said that rescuers have talked to them about their inconvenience and had consoled them which 78.9% of these rescuers were their relatives or friends and only ~20% were rescue workers. Also, in previous earthquakes in Iran, survivors have believed that rescue workers were not concerned about their feelings.¹⁷ Planning educational programs for changing the attitude therefore seems to be essential, as well as increasing the knowledge of rescue workers of the health system, Red Crescent Society and police and military forces about the importance of delivering mental health services to the survivors of natural disasters.

Obtaining correct information about the situation of first-degree relatives may play an important role in the reduction of anxiety following natural disasters.¹⁸ In the first group of our study, only 57% were aware of their relatives' situation in the first 2 week after earthquake, whereas 85% had no information about their childrens' situation. 40% of individuals of both groups said that rescuers had not let them to cry. Also, in another similar study of earthquakes in Iran, survivors had been prevented from tension relief.¹⁷

Attendance in mourning (lamentation) ceremonies for relatives is an important factor which facilitates tension relief and has a role in the reconstruction of family relationships. 17 Only 50% of individuals in group A had some possibility to attend such ceremonies. 32% of individuals in group A said that they knew someone who was an addict, but had not received any alternative treatment. Hence educating rescuers about symptoms of withdrawal syndrome and treatment with narcotics should be a concern.

Five percent of individuals in group B said that they had behaved in a bad manner or been abused in the first 2 weeks after the earthquake. This group was more prone to psychological issues after a disaster because of their age.⁷⁻⁹ It seems that greater attention should be paid to this particularly vulnerable group in future. Only 23% of children had played during these 2 weeks, while 32% said that they did not have any facilities for playing. Previous studies demonstrated that children have had a positive reaction after receiving toys in disasters and these facilities reduces the prevalence of PTSD and other psychological problems. 17

Conclusion

In conclusion regarding groups, rescue activities and primary care had largely been provided by relatives and domestic people; therefore general training and organizing CBO (Community Based Organization) for providing services in disasters especially in regions which are at high risk of earthquake will be useful for reducing the injuries. According to this research, rescuers are in serious need of training in mental health services and that the major areas of education needed include in particular counseling techniques, access to and provision of the necessary information for survivors, and stress management techniques.



Tables & Figures

Table 1: The role of different rescuer groups in rescuing survivors who needed rescuing from the load

Rescuer Group	Group A		Group B	
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency
Relatives and friends	42	93.3	30	69.7
Other natives	12	26.6	7	16.2
Rescuers of Red Crescent Society	2	4.4	2	4.6
Police and military forces	-	-	2	4.6
Health workers	-	-	-	-
Foreign rescuers	-	-	-	-
Others	2	4.4	5	11.6

Table 2: Absolute and relative frequency of individuals of group A who were rescued from the load
 (In different intervals between the earthquake and the time of rescuing from the load).

Time	Absolute frequency	Relative frequency
$1 \geq t$	13	28.9
$2 \leq t \leq 3$	16	35.5
$4 \leq t \leq 12$	7	15.4
$12 \leq t \leq 24$	4	8.9
$24 \leq t \leq 48$	4	8.9
$48 \leq t \leq 72$	1	2.2
$72 < t$	-	-
Total	45	100

Table 3: Absolute and relative frequency of positive responses of individuals in group A who were rescued from the load to the following questions.

Questions	Rescuing step		First aid step	
	Absolute frequency	Relative frequency	Absolute frequency	Relative frequency
Did rescuers talked with you about your inconvenience?	19	42.2	25	55.5
Did rescuers listen to you carefully and considerately?	22	48.8	33	73.3
Did rescuers ask you not to cry?	33	73.3	34	82.2
Did rescuers give you unreasonable hope?	22	48.9	43	95.5

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