第 105 回日本精神神経学会総会

シ ン ポ ジ ウ ム

Psycho-Social Interventions in Disasters : A Narrative Review with a Focus on Bam Earthquake, Iran, 2003

Azadeh Malekian, MD (Behavioral Sciences Research Center, Isfahan University of Medical Sciences, Iran)

A deadly earthquake destroyed the city of Bam in Iran in 2003. The author, as a senior resident of psychiatry at that time, participated in the psychosocial interventions carried out for the survivors closely afterward. With this background and through an extensive review in disaster psychiatry literature, this paper aimed to briefly introduce the principals of Psycho-Social Interventions (PSI) in disasters, history of PSI in disasters in Iran and to describe the Bam earthquake and PSI carried out in Bam after the earthquake.

Disasters and psycho-social impacts

In a vast amount of disaster literature, psychosocial impacts have been recognized to be among the most debilitating long-term disaster consequences. Different models have been used to portray the causal pathway toward those impacts. Also, many different variables have been studied regarding their associations with disaster psycho-social impacts as a whole, as well as with some specific common mental disorders in disaster survivors.

Models to illustrate psycho-social impacts of a disaster

1. Epidemiological triad model : In this model, the classical interactions between agent, host and environment are examined to elucidate the "causal pathway" to psycho-social among other impacts of the disaster.

2. Haddon matrix model : In his matrix model, Haddon considers the above mentioned interrelations within each phase of the disaster (i.e. : pre-event, event and post-event phases). Haddon also adds the forth factor (called vehicle) to the classical triad. His model has been used as a useful guide for mapping prevention and management strategies.

3. Disaster ecology model : This is a comprehensive model in which agent, host and environment factors are reframed in terms of "forces of harm", "affected population" and "the ecological context of the disaster". The environment factors are special foci of attention in this model. They are considered as a continuum including three levels of ecological context, namely individual/family, community and societal/structural factors. Risk and protective factors for and against disaster negative impacts can be comprehensively described in this context.

Variables influencing psycho-social impacts of a disaster

These factors can be best explained within the disaster ecology model. The variables can

be categorized to factors related to the disaster itself (forces of harm) and ecological context factors. The detailed discussions about the relationships of these factors with the psychosocial impacts of disasters are far beyond the capacity of this paper. So hereunder these factors are just introduced as a list :

1) Forces of harm factors including :
    a) Disaster type :
        ・natural disasters
        ・human-generated disasters
    b) Disaster magnitude :
        Including the concepts of relative and absolute magnitude
    c) Time dimension
    d) Place dimension
2) Ecological context factors (proximal to distal layers) :
    a) Individual/family factors including :
        ・Gender
        ・Race
        ・Ethnicity …
    b) Community level factors including :
        ・Social support
        ・Community socioeconomic status
        ・Social environment
    c) Societal/structural factors including :
        ・Geography
        ・Physical environment
        ・Cultural context
        ・Political structure and governance
        ・Health and social services infrastructure

Some of these factors have been a focus of attention in several studies. For example, it is of a wide consensus that human-generated disasters, especially those in which harm is intentionally produced, are associated with more negative psychosocial impacts than natural disasters.

Some other factors have been the subject of controversy and contradictory findings in different studies. For example, the higher vulnerability of female gender has been attributed to other variables like level of education, social support and economical status in several studies. Many other mentioned factors have also overlaps and interrelationships.

The way in which some of these factors may affect the psychosocial impacts seems clear. Just as a very relevant example about the role of physical environment, one can notice that : The cities of Kobe in Japan and Bam in Iran were shaken by earthquakes of comparable magnitude in 1995 and 2003, respectively (This is why the Bam has been called as one of the Kobe's sisters). Most buildings in Kobe could withstand the earthquake, while those in Bam collapsed almost completely. Absolute numbers of death and morbidity rates were substantially higher in Bam. Health infrastructures in Bam were also destroyed completely and the time period for reconstruction of the Bam city was much lengthier followed by more prolonged community suffering. The tale of these two cities regarding the difference of psycho-social impacts is a real human tragedy.

PSIs in disasters ; general principles and common practices

PSIs for disasters are generally programmed in three different levels in which the target population who would receive and the executors who would do the interventions are different.

The first level or the so-called promotion activities are the basic PSIs beginning from the early phase of the disaster. Activities in this level are done by community members and para-professionals and the receivers are the whole affected population.

The second level or prevention activities begin later, are executed by trained counselors and other mental health professionals and aimed toward those who manifest signs of ongoing adjustment problems.

The third level of PSIs are done by psychiatrists and clinical psychologists and are aimed for those people with full-blown psychiatric disorders like generalized anxiety, major depressive and/or posttraumatic stress disorders which have been either presented or exacerbated after the disaster.

Though PSIs may vary in practice according to different disaster types and many contextual factors, there are some generally-accepted core principals in this regard. These principles are conclusions derived from several studies in disaster mental health and should be considered in any PSI activity and program. Hereunder some of these core principals are briefly introduced :

1) First of all "Do no harm" : interventions should be evidence-based and avoid activities which may interfere with the normal recovery

2) Respecting for the views of the target people

3) No discrimination including attention to vulnerable disadvantaged groups

4) Confidentiality

5) Honesty and objectivity

6) Responsibility : providing information about each intervention as well as ensuring informed and voluntary participation

7) Avoiding further exposure to violence (e.g. malpractice in psychological debriefing sessions)

8) Specialization and referral

9) Community participation : PSIs can do harm in the case of dealing with the affected people as helpless victims

10) Empowerment : PSIs should help people to find solutions and solve their own problems

11) Normalization and avoiding medical model : People should learn that their problems are natural transient reactions to such huge stressors

12) Utilizing family capacities even when they are limited

13) Advocating basic needs and information dissemination

14) Focusing on stress and adaptation, not traumatization

15) Focusing on resilience, not vulnerability

16) Paying attention to specific issue with cultural considerations (e.g. burial of dead bodies, rituals and grief)

PSIs in disasters : Common practices

The specific activities which are practiced as PSI in disasters vary according the event phase. Some activities should have begun before the disaster occurs. This phase is called mitigation or preparedness phase. Common activities in this phase include :

1) Development of a coordination system, specification of focal authorities responsible for each relevant agency, with plans for collaboration with other governmental and non-governmental resources

2) Designing detailed plans to prepare for a psycho-social response

3) Training relevant human resources and personnel

4) Need assessment

When a disaster strikes, the choice of PSI again varies with the phase of the event. As a broad classification two main phases are considered hereafter. The first phase is called acute emergency phase or disaster phase. This is the

period during which the mortality rate is substantially elevated because of deprivation of basic needs due to the disaster. In psycho-social program this phase is compatible with the promotion level activities. This period is followed by a re-consolidation phase when basic needs are again substantially met. This phase is matched with the prevention and treatment levels of psychosocial program.

Valuable PSIs in the disaster phase

- Disseminating reliable important information on the event itself, relief efforts and the location of relatives
- Organizing family tracing
- Brief field assessment in the areas where other basic supports are presented
- Organizing shelters in a way to promote family re-union
- Consulting the community regarding decisions of location and essential supplies in the camps. Providing religious, recreational and cultural spaces in the design of camps
- If realistic, discouraging unceremonious burial of dead bodies. Contrary to myth, dead bodies carry no or extremely limited risk for communicable diseases. Death certificates also need to be organized
- Re-establishment of normal cultural and religious events
- Facilitating the inclusion of vulnerable individuals into social networks
- Organization of normal recreational activities for children ; being careful not to hand out recreation materials considered to be luxury items in the local context before the disaster
- Starting schooling for children, even if partially
- Involving adults and adolescents in concrete,

purposeful, common interest activities
- Wide dissemination of understandable, reassuring, emphatic information on normal stress reactions to the community at large with a focus on normal reactions
- Establishing people contact with mental health care in the local area and managing urgent psychiatric complaints as far as possible without medication following the principles of 'psychological first aid'
- Organizing outreach and non-intrusive emotional support in the community by providing, when necessary, 'psychological first aid'

Commonly suggested PSIs in re-consolidation phase

- Continuing the already started relevant social interventions
- Organizing outreach and psycho-education to educate the public on availability or choices of mental health care. Commencing no earlier than four weeks after the acute phase, the public should be carefully educated on the difference between psychopathology and normal psychological distress, avoiding suggestions of wide-scale presence of psychology and avoiding stigmatization
- Encouraging people to apply their pre-existing positive ways of coping. Encouraging economic development initiatives
- Educating other relief workers as well as community leaders (e.g., village heads, teachers, etc) in core psychological care skills
- Ensuring continuation of medication of psychiatric patients who may have had access to medication during the acute phase of the disaster
- Training and supervising community workers (i.e., support workers, counselors) to assist health workers with heavy case loads

・Collaborating with traditional healers when feasible

・Facilitating creation of community-based self-help support groups

History of disaster mental health care in Iran

Iran ranks among the top ten disaster-prone countries of the world, fifth in Asia following China, India, Bangladesh and Pakistan. The most common natural disasters regarding the number of occurrence are : earthquake, flood, drought, extreme cold and fire.

The first organized disaster mental health activities in Iran began in 1991 with developing a National Committee for Disaster Reduction. One of the subcommittees of this national committee was designed for health, to be headed by the minister of health.　Mental health office in the Ministry of Health (MOH) in collaboration with experts from Shahid Beheshti Medical University planned a proposal on mental health service delivery to survivors of natural disasters. The activity began with a review of international findings on disaster mental health as well as a comprehensive need assessment resulted in designing a national plan.　Executive, educational and research strategies were developed.　A series of manuals were prepared for the public, relief workers, professionals and executive officers.　Relevant human resources began to be developed.　Several training of trainers (TOT) workshops were hold for the Red Crescent trainers, who in turn trained the relief workers on basic skills for social support. UNICEF also supported a series of professionals' training.

The national program did its first real activity in June 2002 after the Abgarm earthquake in Iran.　One year later the national program for mental health risk reduction in disasters had a very effective and organized activity for the survivors of Bam earthquake which will be introduced briefly.

PSIs in the Bam earthquake

The Bam earthquake has been one of the most devastating natural disasters in the world. Earthquake struck on a very cold winter morning, Friday, December 25th, 2003, at 05 : 27 a.m. with the strength of 6.8 on the Richter scale. Over 30,000 people were injured and 85,000 people became homeless (85 percent of houses were completely destroyed).　City was virtually ruined and all social and economic services were totally destroyed.　Fifty percent of the health staff and school teachers were killed. Arge (Citadel) Bam, a major historical world treasure was almost completely destroyed (it was the largest mud-brick structure in the world which had guarded the Silk Road for over 2,500 years).

Regarding the large scale disaster, the huge number of mortality and morbidity, and the extreme exposure of survivors to loss, grief and catastrophic change, their need to support to overcome the psycho-social consequences was a clear fact.

PSI was directed by the mental health office in MOH and stared from the first day. UNICEF supported the PSI program and later WHO launched a long-term program for rebuilding the mental health services network in the region.

Only a concise review of the interventions would be possible to be presented here : The psycho-social interventions after Bam earthquake divided into two stages. (The community preparedness before the earthquake phase was almost none.)

Immediate PSIs (0-2 weeks)

In this stage MOH rapidly erected a psychosocial post, directed a rapid psychosocial assessment and coordinated information dissemination and tracing activities. Injured survivors who were transferred to other cities connected to their families via messages through emails, radios and billboards.

Mental health workers and trained clergy men helped people in holding funeral and mourning ceremonies.

MOH coordinated inter-sectoral mental health activity especially with Red Crescent and welfare organization.

The other major activity of MOH was mobilization of man-power both local and from other country parts. Orphan support and tracing activities were done in collaboration with the state welfare organization.

Mid term interventions (3 weeks-6 months)

In this stage, the outreach activities and tent visits were carried out by psychologists, psychiatrists and psychiatric residents. Survivors were gathered together in groups, and initial psychosocial support (psychological first-aid) was done. People with adjustment problems were screened. These screened people were again gathered together in homogenous groups (regarding sex and age) and then professional group intervention was started for them. These interventions were based on a modified national package based on the package originally developed in the United Kingdom and Norway. Traumatized people attended four sessions of group intervention with weekly intervals and did homework in between. The program approached a total coverage within the first year after disaster and professional group trauma counseling was ac-

complished for all screened survivors.

The content of group trauma counseling sessions differed according the age and the problem subject of intervention but generally included psychological debriefing sessions, training sessions for self-management of symptoms like re-experience of the trauma, hyper-arousal, anger, irritability, and maladaptive avoidance from reminders of trauma. Specialized children groups were also formed and parallel education groups for parents or others in charge for children care were held.

The other valuable activities which were held by MOH with UNICEF collaboration and support were school and community interventions, training activities and regular evaluation and monitoring of the above-mentioned activities as well as relevant research and studies on psycho-social post-disaster issues.

Personal observations as a psychiatric resident participating in PSI after the Bam earthquake

As a resident of psychiatry at that time, I was trained to perform psychological first aid and screening activities in the field as well as directing and facilitating group counseling sessions with different groups of people. I worked in Bam in the mid term intervention phase (3 months after the earthquake) and stayed there for one month.

In a close contact with many people, especially in psychological debriefing sessions, I learned a lot about their experience and their sorrows. Hereunder, I would like to communicate some of my observations to the readers of this manuscript and to narrate some other aspects of Bam earthquake just as a personal observation.

1) Bam is an ancient city with a rich tradition-

al culture. Strong family relationships were apparent. Re-unification of families had helped them to overcome some of the problems with each others' help. Most of those children in Bam who had lost their either or both parents in the earthquake, had been protected by other family members. The most traumatized individuals benefited from other family members' and relatives' attention and support. This social embeddings seemed to be a resiliency factor.

2) Bam people had been living under a relatively hard life situation even before the earthquake. The weather in Bam is extremely hot in summer and extremely cold in winter. The people were generally poor even before the earthquake. Living in hard situations may have contributed to the hardiness of the society, as a resiliency factor against trauma. In debriefing sessions, people frequently compared themselves with the date trees in Bam who were still alive and stable.

3) Partly due to psycho-social intervention activities, but mostly due to the peoples' own bounding to their traditions, the traditional ceremonies were resumed very soon after the earthquake. On the third month after the earthquake, people made themselves ready for the new year. They did their best to keep their traditions alive. They held the "norooz" (New Year's first day) ceremonies in the huge cemetery of the city in which their loved ones' had been buried in groups. Even the new couples' marriage ceremonies were held in a traditional from in the tents although with so many tears in peoples' eyes.

4) As a common belief, many people in Bam assumed that the earthquake can be a punishment by God. This belief was followed by different attitudes toward the earthquake. Some people had a sense of guilt, and others had anger toward those who had implicated that "you have been punished by God". They frequently emphasized that they did not deserve such a bad catastrophe. On the other hand, some suspiciousness about the nature of the disaster had been aroused. We frequently heard that people say "this has not been an earthquake. It has not been the God's act. It has been a kind of bombing. God is not so cruel toward us. It has been a massive man-made disaster." This was a disturbing sense of mistrust toward the news which would interfere with the people's psycho-social rehabilitation. When the issue was being discussed in the tents, they could better accept the reality and they were somehow relieved. Clergy men and all other relief workers had been trained to put example verses from the Holy Koran which assumes a disaster as "a new life chance for the survivors" rather than "a punishment from God".

5) The low speed in which reconstruction of the city was going on, could somehow interfere with the peoples' psycho-social adaptation. Schools had been held in tents and many other social valuable ceremonies and activities had been established while people were still encountering problems with responding their basic needs. In another term, one can say that psychosocial interventions were somehow ahead of other supports.

6) Numerous secondary stressors, including insecurity feelings and the problem with insects, spiders and scorpions around the

tents were visible. In the first days after the disaster, robberies and abducts had been occurred by some opportunist thieves coming to the city. The trace of fear and hatred toward this happening was seen in children's drawings (for example, the 8 year boy's drawing which showed a thief busy disconnecting and picking up a ring gold around a dead woman's wrist).

7) People believed that the catastrophe could be less devastating if the minor earthquakes which had been shaking the city before the major disaster had been taken serious by the government. They wished they had been evacuated (Many people stated that after many other minor earthquakes, they had experienced a terrifying ground-shake the night before the disaster, which made them to rush outside of the buildings, but they returned home and slept there after a short while, because they could not tolerate the very cold weather of that winter night).

8) Despite many efforts by the PSI workers and as a result of the huge mortality rate, many dead bodies had been buried in a non-ceremonious manner and this had apparent negative impacts on many survivors.

9) Children and adults had spent a non-evitable difficult time besides the dead bodies of their loved ones (even the mutilated and grotesque ones) before they could find a vehicle to carry them to the place of burying. This was a catastrophic experience for many people, especially children.

10) Some highly sensationalistic social activities were held by some of the local people (and this is discouraged in disaster mental health literature). The example is broadcasting films in the public which showed terrible scenes of the disaster and selling such video-CDs to people.

11) Many people didn't trust the governmental authorities about the honest-delivery of all national and international donations.

12) Another source of mistrust was about the information dissemination. People believed that the national media including local and widly circulated newspapers spread news in a way to minimize the disaster severity and impacts and to exaggerate about the progress of reconstruction activities.

13) Most people warmly welcomed the group counseling sessions and regarded these sessions as one of the most useful helps and supports they had received.

14) Some people argued that their dignity has been neglected by the way they had received some of the basic supports.

15) As a whole, people believed that seeing so many people rushing toward them for help, both from inside and outside country was the greatest source of hope for them, inducing a sense of responsibility to re-organize their life.

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