DEVELOPMENTAL PHASES OF CHILDREN'S REACTIONS FOLLOWING NATURAL DISASTERS

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Mental health professionals are increasingly becoming aware of the number and variety of catastrophic events affecting the lives of individuals. These sources of stressors are being generally categorized into man-made (radiation leaks, chemical pollution, terrorism) and natural disasters (earthquakes, tornadoes, volcanoes). The need to plan, develop and offer assistance to the victims of these injurious events is prompting further study into the human health and mental health consequences and sequelae. This is highlighted by the fact that the *Diagnostic and Statistical Manual of Mental Health Disorders* of the American Psychiatric Association (1980) has reinstated the diagnostic category of "Post Traumatic Stress Disorder" and defines it as follows:

> The essential feature is the development of characteristic symptoms following a psychologically traumatic event that is generally outside the range of usual human experience.
>
> The characteristic symptoms involve reexperiencing the traumatic event; numbing of responsiveness to, or reduced involvement with, the external world; and a variety of autonomic, dysphoric, or cognitive symptoms.

As one analyzes the clinical and behavioral manifestations of children's reactions to traumatic events found in the literature, one finds complex descriptions that involve the biological, psychological, interpersonal, behavioral and social perspectives. To develop an understanding of individual variability in the reactions of post-traumatic behavior, it is necessary to find a conceptualization that combines knowledge and semantics originating from a large number of diverse professional disciplines—sociology, psychology, biology. This necessity presents a novel situation to traditional, clinically trained mental health professionals. Not only do they need to expand their understanding of how multi-variate circumstances unleased by the traumatic event affect the individual but, in addition, they must devise a new interventive approach to develop psychotherapeutic techniques that take all these new concepts into account. This, in turn, will influence his role as a member of the disaster assistance team. To make these change the clinical mental health professional needs to acquire a body of knowledge which includes awareness of the changing reactions of individuals through time and relocation sites.

This paper has the primary aim of describing observed behavior after disasters. The method of documented observations has been obtained from an extensive study of the literature (see List of Additional Bibliography) and personal experiences of the author. These experiences started in Lima, Peru, after the 1970 Callejon de Huaylas, earthquake and "aluvion". The author assisted the organized governmental teams plan intervention approaches. In 1973 she led a U.S. disaster assistance team in Managua, Nicaragua, following the Christmas earthquake that devastated that city. She organized the mental health team operation and was part of the group that participated and documented the services to several thousand victims assisted by the U.S. effort.

In 1978, following the Boston Blizzard Disaster, she designed the mental health services to her "catchment" mental health area, of which she was the Director. At the end of 9 months, the team had documented and put on computers the psychological profiles of over 4,000 victims (Crisis Counseling after the Blizzard of 1978, Final Report, Mass. Dept. of Mental Health, 1978). The author has continued to consult and participate in the activities of the Center for Mental Health Studies of Emergencies, NIMH, Washington, D.C. In this capacity she had access to several thousand case reports presented by professionals working in national programs for post-disaster interventions. She has obtained supporting evidence of the profiles developed in this document from several hundred professionals who participated in over 15 regional and national training workshops she developed in the last 15 years.

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These post-traumatic child and family reactions are conceptualized across time phases using a developmental frame of reference described by Tyhurst (1). The organization of these reactions includes associated findings in the bio-psycho-social expressions of individual developmental phase-appropriate reactions. The selection of the various descriptions of observed and documented reactions after disasters are sketchy and fragmented because they are the recompiled efforts gathered during various experiences of different authors and professionals who have reported them in their own style and perspectives. They have tended to perceive these experiences through their own "lens" and have chosen to report key observations as expressions of what they thought was important in understanding the individual and his/her situation.

The method chosen to present key child and family reactions identified in publications plus personal experiences was, to sort out, on a broad organizing grid, a group of specific categories of reactions. On the vertical frame, the categories are listed according to identified professional perspectives—biologic, psychologic/emotional, interpersonal and socio-cultural. The horizontal categories include the sequential periods before and after the disaster strikes. In this way, we can identify groups of expected reactions, during one of these periods and conceptualized the individual's experience (depending on age) through a specific frame of reference. For example, we find in the "Recoil" period and the "Interpersonal Perspective" an increase in competitive behavior (possibly stimulated by the anxious need for a family to obtain a fair share of the scarce resources available following disaster relief operations).

Obviously, there are overlapping descriptions of family or individual reactions that cannot clearly be differentiated through the use of descriptive discriminating variables, due to our lack of a solid research knowledge base and a transcultural research focus. This chapter is an effort to compile documentation to assist and to achieve a preliminary approach to help disaster-relief workers. It will allow them to organize their own increasing understanding of the behavior observed, continue to document their own experiences using their own professional point of view and theoretical preferences. The author is suggesting one approach to conceptualize the variety of reactions of this complex post-traumatic phenomenology. By using the time frame structure across time-phases to underline the developmental nature of these behavior patterns, the need to take this into account when trying to ascertain and diagnose the severity of post-traumatic syndromes will become clearer.

There is a relation between the approaches by which problems are defined and the interventions chose and translated into action. Mental health problem definitions reflect inferences and assumptions about the causes of the problem. In the case of post-traumatic stress reactions and behavior, one conceptualization that can be used based on the bio-psycho-social model is as follows: the human crisis reaction that occurs in an individual following the disaster impact is related to 1) the personality structure of the individual; 2) age, sex, ethnicity, economic status; 3) usual coping (adaptive defense) styles; 4) intensity of stress; 5) available and appropriate "fit" between individual need and support systems; 6) extent of personal loss suffered; and 7) availability of relief and community disaster-assistance resources. Using these knowledge components, the problem definition of the situation in which the victim finds himself (the way we organize and relate all these characteristics, their hypothetical interactions and influences on the individual's health and personal functioning) offers guidance in which way a mental health worker can assist a victim (2).

The body of knowledge selected to highlight the characteristics of human reactions in the aftermath of a disaster are not all inclusive but are presented in Figure I as a method of systematically ordering data and including some inferred understanding of the adaptive defenses available to individuals. These adaptive defenses are defined as follows: an existing human characteristic (health, age), process, activity, or social skill that acts as a barrier, regulatory system, or "filter" to modify the impact of the stressor so as to resist, to deter or to self-correct the effects of the reactive psycho-physiologic disorganization of the organism faced with traumatic after-effects of a disaster.

Post-disaster behavior in children

The following presentation documents the developmental sequences in coping and adaptation of a group of youthful victims. This camp was set up to gather the victims of an earthquake which had destroyed their town and killed many of their parents. The descriptions are composites of many types of reactions and are presented as an example of how reactions vary over time.

FIGURE I
DEVELOPMENTAL PHASES OF BEHAVIOR IN NATURAL DISASTERS

FIGURE I	THREAT		IMPACT		RECOIL		EARLY AFTERMATH		LATE AFTERMATH
	Effects on Behavior	Adaptive Defenses	Effects on Behavior	Adaptive Defenses	Effects on Behavior	Adaptive Defenses	Effects on Behavior	Adaptive Defenses	
BIOLOGICAL PERSPECTIVE	No information	No information	Changes in neuro hormonal systems Fatigue Exhaustion Overactivity	State of health/nutrition Immune response is effected	Insomnia Psychosomatic problems Irritability	Increased use of medical facilities	Levels vary in -health -recovery from illness and injuries	Continuous use of medical help	No information
PSYCHOLOGICAL PERSPECTIVE and EMOTIONAL PERSPECTIVE	Superstitution Rumor Confusion Passive-negative High sense of invulnerability Humor	Increased use of psychological defenses -denial -displacement -repression -reaction-formation	Centrality Reversal of usual behavior Fear Anxiety Cognitive clouding Psychic numbing	Further use of denial Increase in action-focus Passivity Docility	Hyperactive Overactive Grief Depression Narcisstic sensitivity Increased anxiety Aggression Competition for resources	Problem solving Flexibility Increased use of fantasy and illusion Action oriented	Return to normal function % Less than normal function % Resignation Pathological resolution (fixated in ambivalent emotions)	No information	No information
INTERPERSONAL PERSPECTIVE	Helping Planning Shopping Community activity "Worry work"	Availability of: -family -friends -helping agency	Helplessness Isolating oneself Docility Dependency Indecisiveness Scapegoating Guilt	Extending support to others Grouping increases independent position and rigid behavior (as example of coping)	Easily "hurt" Difficulty in sharing Competition Frustration with bureaucracy as time goes by	Extending support to others Altruism Hoarding Psychological defenses: -Rationalization -Reaction-formation	Relations with job/family will reach different levels of accommodation	Return of usual defensive status	Restored communication Routines New "normalcy" using normal behaviors
SOCIO-CULTURAL PERSPECTIVE	Active participation in religious activities Participation with agency in preparation for disaster	Community offers traditional approaches to support population	Family ties strengthen Religious feelings expressed more publicly Myth of the culture has stronger influence on individual	Status/economic Role strength Social support Primary relationships Socio-economic (Quality & quantity of assistance)	Tradition -stronger -weaker Religious activities (vary in the individual manifestation)	Finding available support systems Using government as scapegoat Displacing responsibility Blaming the authorities	Anniversary of events triggers increase in religious ceremonies, cultural and group activities	Increased/ decreased use of Legal & Religious systems Greater use of agency systems in community	Reconstruct community systems and routines to "normal" (new situations and restored New World)

Theoretical base

Literature dealing with related problems of separation, loss, mourning, coping and adaptation in childhood and adolescence, suffers from confusing theoretical viewpoints. A framework of biopsychosocial adaptation has been selected to elucidate the underlying theoretical base of this paper. This model stresses the individual's potential capabilities for adaptation, which develops as the evolving organism interacts with the environmental stimuli according to a developmental blueprint. In other words, human coping and adaptation behaviors are viewed as a series of systematic, sequential, evolving activities forming from the interplay between the individual and his/her environment. The psychological reactions to a situation of manifested vulnerability stimulates anxiety levels, which in turn trigger defenses, motivation, and attitudes that allow the individual to negotiate with environmental stressors and demands (Brody and Axelrod, 1970). Variations in coping styles are, therefore, related to behavioral and psychophysiological reactions to stressors.

The relationships of competence and socialization are analyzed by Smith ("Com. & Soc.", 1968) in terms of attitude, self-esteem and self-concept of competence. He found that these variables have an effect on the adaptive success of the individual's interaction with the environment. Similarly, the environmental factors in the adaptation process are reviewed by L. Phillip (1968). This author examines the development of social competence in the presence of societal expectations and pressures; while Dr. Carl T. Born explores the relationships between social stressors (1980) and the range of adaptive responses "allowed" within specific social frameworks.

From the literature of stressors and stress reaction and consequences influenced by mediator variables (Institute of Medicine, Report of a Study, Research on Stress and Human Health, 1981, National Academy Press, Washington, D.C., Publication 10M-81 05), it has been established that all individuals are exposed to stressful experiences. The reactions to the noxious agents (biological or psychosocial) vary according to marked individuality. Among the factors singled out as influential, we find the following: genetic variations; changes in the social environment; human emotional bonding processes; and health/illness state. Influences based on tentative research findings conclude that individuals who experience any of a wide range of stressful events or situations are at increased risk of developing a physical or mental disorder. This hypothesis guided many of the approaches used by the team of mental health professionals in their interaction with disaster victims.

Uprooting, as a human experience, can be related to consequences of human disaster and desolation, or, at time of challenge, increase coping, adaptation, and new development of increased capacities. It produces an increase of needs in areas of change which are closely associated with separation from the familiar social, cultural and environmental support systems. This experience of separation from known and used types of supports renders the uprooted individual vulnerable to the potential consequences of change, but at the same time offers him/her the challenge for new development into different approaches to his/her life patterns. This quality of outcome, whether constructive or destructive, will be determined by a balance of forces resulting from the quality of the situation that produced the uprooting and the individual's own personal and social skills, among which are coping and adaptation.

There is a close relationship of the type of outcome resulting from the personal dynamics of coping with the stresses of uprooting and the organized social responses of a community that is willing to alleviate the stresses and promote the supporting structures that eventually will assist the uprooted individual in coping with environmental changes. The possibility of anticipating, averting, or in fact minimizing the outcome of new stressful situations capable of increasing the emotional hazards of many vulnerable groups in times of social transition, is one of the chief goals of developing preventive public mental health systems.

Uprooting and themes of separation in post-disaster sites

Initially, adolescents who had just arrived at the camp showed apathy, low level of interest and/or availability of energy to participate in the camp activities. Issues of loneliness, fearfulness, and withdrawal and intense need to recreate a family constellation were indeed prominent. It was observed that they watched anxiously around them and with suspicion, worrying that something might suddenly happen to them. They would look around the area of the camp, seldom making eye contact, and wondering what would happen to them. At times, they would not hesitate to approach the adults to inquire as to their future. Many times, many of these youngsters sat silently with expressionless faces; while a few remained active and tried to become involved in

physical activities of sports or games. It became difficult at times to reach out to some of these adolescents and challenge them to get involved in the planning and daily logistics of their lives at the camp. Meanwhile, those who were involved became extremely attached to their daily routines and had difficulties giving up their established schedules.

The uprooting process, as well as other anxieties and the impact of separation depleted these children. Interfering preoccupations did not allow them to focus their attention on their daily routines and schedule of activities at the camp. Indeed, overwhelmed by emotional reactions, confused by cognitive dissonance, and continually trying to process a sense of disorientation and fearfulness to express complaints, they demonstrated real difficulties with questions and discussions about their reactions to the various procedures, especially to their role as victims. Denial, reaction formation, fragmentation and distortion of reality were also frequently observed modes of coping with reality.

The camp setting provided a mix of routine activities, support structures and predictable regulations in an environment which, at times, was in crisis. There was staff accessible and available to give guidance, support, and emotional first aid. Adult and peer structural identification of regulations, routine, and expectations in the camp setting increased as time progressed, and mitigated adolescent reactions of the future with its unknown outcome and supported active mastery behavior in these unaccustomed circumstances.

The children wondered why plans were altered without either their prior knowledge or the opportunity to have some control over the circumstances. They would ask camp workers to explain how to use existing communication channels of authority, why things changed so rapidly around them, and what in their opinion would be their future. Fears of helplessness and loss of privilege were also an issue of concern, not only regarding the events in the camp, but also because of their own fear that they would not live up to certain expected behavior. They felt that this might have negative consequences in terms of interfering with relocating.

A percentage of these teenagers progressively developed the ability to process the feelings accompanying mourning, and began relying on relationships with other adolescents for self-esteem and confidence, and with adults for support systems, friendships and learning. As we know, a very important function of adolescents is to be like others and to be accepted by peers. To be different and to be pointed out or discriminated against is a painful experience. Adolescent refugees/victims often felt unaccepted, not only by virtue of their own emotions and fantasies in response to their adversity. They indicated that they were singled out and discriminated against for the fact that they were victims and that the camp workers resented and were reluctant to accept them.

Upon arriving at the camp for refugees, the adolescents encountered strangers, an unfamiliar setting, unusual and unpredictable events, and frightening and sometimes painful and embarrassing procedures. Complaints about restrictions of activities, food, activities that they did not enjoy or understand the reason for, lack of privacy, and lack of opportunity to choose and be free were common place. Many struggled against passive compliance with underhanded and cooperative behavior, while others gave up their spontaneous behavior through renunciation and degrees of self-control. On the other hand, the kinds of coping and adaptation processes which necessitated regaining assertive behavior and active expression of individuality also threatened these youngsters. Some showed a reluctance to try new learning activities. They perceived it as an unfortunate fraught, resulting in possible punishment, or expressed the fear that they would be further discriminated against, or not taken care of, if they showed assertiveness.

In time, these victims tried to develop a small territory of their own by decorating their cots and living footage with symbols of their interests, belongings, and also with posters. They were afraid to put anything personal on the surface of small tables or their cots because stealing was commonplace. Small groups were formed and occasionally groups of 2 or 3 boys engaged in talking, walking around the camp began to emerge, and laughing or teasing the camp workers. Some of these new relations were extremely gratifying. Whenever one of the members of the group had to say goodbye, it was always a tearful, painful and troublesome experience for the ones that were left behind. The processes between individuals that led to peer support and to finding ingenious methods of self-help for coping and adaptation, indicate that significant value is derived from group process.

Life in camp

The adolescents involved themselves with camp life in their own terms, and cautiously began participating in some activities. They appeared curious as they observed and listened attentively to the adults making plans for them. Levels of depression and anxiety began to diminish during the first 5 to 8 weeks.

Whenever some issue of loneliness, worry and/or anxiety in relation to their experiences was discussed, one could sense their increased restlessness in trying to deny or displace these emotions.

At first it was not apparent to most camp workers that anger and resentment were major affective issues. Some of the adolescents began to express these emotions in a submerged approach manifested in a passive-aggressive manner. Soon some began to express sullen behavior, appear irritable, and speak angrily in reaction to a question. As the weeks followed, and it became clear that sponsors could not be easily found, or that family members could not be located on the phone, the adolescents began to display hostile, destructive behavior, and some vandalism in the barracks. Fights erupted rapidly and spontaneously between one or two of these adolescents.

Psychological post-traumatic reactions

The special hardships that a camp presents to adolescents who are already at such a vulnerable stage of their development, stimulate both anxious fears and fantasies which emerge in response to the situation, and are appropriate to the uprooting and the mourning process. Primary affective issues observed were anxiety, sadness, and anger. The accentuation of these anxieties already manifested in adolescence revive the classic conflicts stated in the existing literature: 1) fear of feelings of loss and abandonment, 2) concerns about future living, uncertainty, 3) ambivalence about authority, 4) sexual proximity, 5) fear of intensity of their own emotions, and 6) fear of the daily unknown and the unexpected.

Sadness, sometimes leading to depression, appeared to be related to the feelings of pain and suffering when remembering the loss of the loved and familiar world. For some, the issues of loneliness, loss and deprivation appeared overwhelming to the ego coping mechanisms. The loss of the support of the family and friends, the deprivation of the familiar surroundings, of their own personal possessions, usual rhythm of activity and physical outlet, accompanied feelings and expressions of helplessness and dependency behavior.

Anger appeared slowly, and at times led to explosive and dangerous behavior. At first, the youngster defended from anger by trying to adapt and cope with the unfamiliar and foreign setting. This was followed by other defenses and coping behavior which searched for rationalizations, made use of projections and heavy use of denial. Projection defenses appeared to assist coping by blaming the immediate setting and the camp workers as purposely trying to hurt them. Both projection defenses served as perfect scapegoats for their rage. The youth did not discuss the inadequate care and nurturance in their past, in spite of the fact that some of it had been previously reported. Many of their feelings were submerged in an ambivalent manner and then displaced at the camp staff and the administrators who desperately tried to find them sponsors.

Allegations of unfair treatment were continuous and commonplace. Mental health professionals, aware of and sensitive to the process of adaptation, encouraged the graduated process of testing-trial behavior, assertive experimentation and practice for mastery. It was observed that a large percentage of these adolescents were able to change and adapt, while a smaller group, among them the clinically diagnosed mental disordered adolescents, seemed unable to mobilize the necessary ego mechanisms to process the affects and reroute their energy towards learning and coping.

This work details the historical opportunity to work within a camp setting addressing the psychological needs of a population of adolescent victims. The specific focus on coping, mastery and adaptation, is presented in a developmental frame of reference. Accompanying emotional reactions and adaptive behavior is also reported. Observations of psychological processes in this very special population is documented. This approach highlights the need to sort out a) reactive expression of loss and mourning; b) emotional expression as part of the process of adaptation, and c) signs and symptoms of emotional disorders characteristic of syndromes (DSM-III).

References

1. Tyhurst, J.S., "The Role of Transition States—Including Disasters in Mental Illness," In *Symposium on Preventive and Social Psychiatry*, Ed. by the National Research Council. Washington, D.C.: Government Printing Office, 1957.
2. Cohen, R.E. and Ahern, F.L. Handbook for Mental Health Care of Disaster Victims. Baltimore: The Johns Hopkins University Press, 1980.
3. Janis, Irving L.; Mann, L., "Emergency Decision Making: A Theoretical Analysis of Responses to Disaster Warnings," *Journal of Human Stress* 3(2): 35-45, June 1977.

4. Andrews, G.: Tennant, C. "Being Upset and Becoming Ill: An Appraisal of the Relation Between Life Events and Physical Illness," *Medical Journal of Australia,* 1(16):324-7, 25 March 1978.
5. Boman, B., "Behavioral Observations on the Granville Train Disaster and the Significance of Stress for Psychiatry," *Soc. Sci. Med.* 13A(4): 463-71, June 1979.
6. Marks, Eli S., et. al. Human Reactions in Disaster situations. Chicago, Illinois: National Opinion Research Center, University of Chicago, 1954.
7. Anderson, William, "Some Observations on a Disaster Subculture: The Organizational Response of Cincinnati, Ohio to the 1964 Flood," Colombus.
8. Cohen, Raquel E. "Post-Disasater Mobilization of a Crisis Intervention Team: The Managua Experience." In *Emergency and Disaster Management: A Mental Health Source Book,* Ed. by H.J. Parad; H.L.P. Resnick; and L.G. Parad. Bowie, MD: Charles Press, 1976.
9. "Disaster at Buffalo Creek," Special Section. *American Journal of Psychiatry.* 133(3) 295-316, 1976.
10. Devaul, R.A.: Zisook, S., "Psychiatry: Unresolved Grief, Clinical Considerations," *Postgrad. Med.* 59(5): 267-71, May 1976.
11. Dynes, J.B., "Mental Breaking Points," *New England Journal of Medicine* 234: 42, January 1946.
12. Jeri, Raul, "Problemas de Conducta en Los Desastres," *Acta Medica Peruana* 3 (1974): 37-48.
13. Lieberman, M.A.: Mullan, J.T., "Does Help Help? The Adaptive Consequences of Obtaining Help from Professionals and Social Networks," *American Journal of Psychology* 6(5):499-517, October 1978.
14. Leighton, A.H., "Psychological Factors in Major Disasters," *Medical Projects Reports.* Rochester, NY: University of Rochester, 1951.
15. Form, William: Loomis, Charles, "The Persistence and Emergence of Social and Cultural Systems in Disaster," *American Sociological Review 21:* 180-5, April 1956.
16. Ahearn, Frederick L., Jr., and Castellon, Rizo S. "Problemas de Salud Mental Despues de Una Situacion de Desastre," *Bul. of Sanit. Panam.* 85:1 (1978):1-15.