The Emotional Effects of Disaster on Children: A Review of the Literature

Recently we visited a school-based mental health clinic that serves hiispanic and Asian children. Many of these children had been victims of political tragedies that had forced them to leave their parents and begin life anew in a foreign culture. We saw three young adolescents who had arrived in the United States within the last year; two of them were considerably withdrawn, whereas the third had already become integrated into a well-functioning multicultural subgroup. After we had reviewed the case reports on these children, we fell into a conversation with a colleague about our own pasts, the nature of trauma, its influence over time and generations, and its ripple effects through families and communities.

It became apparent to us that we were here encountering many of the problems associated with the mental health of child victim of disasters. Not only did the nature of the trauma and their contacts with it differ for each one but each adolescent was a member of a family that reacted to the stress and contributed to the adolescent's experience of it. Perhaps in no other human experience does the weave between child and parent intertwine so strongly. How children cope with disasters influences their mental functioning as adults, which in turn influences how they rear their children, whose mental health, should they become victims of disasters, will greatly depend on how their parents respond. A loosening of a single thread can fray the whole fabric. Yet, some children, as the one Cambodian child in the clinic illustrated, are resilient in the face of unbearable sum. Why is this? Does a disaster impede a child's opportunity for happiness forever? What is the prognosis for child victims? Can they be helped? In the following pages, we shall address these questions.

Methodological issues

The literature on the effects of disasters on the mental health of children has been mixed. Almost all the work has indicated that immediately after a disaster, child victims are confused and anxious. Some researchers claim that children's mental health is altered for at least two years, if not longer [1-141. Lifton & Olson have written that disasters produce trauma so intense that the emotional reactions will extend over generations, and that adverse effects of significant proportion can occur in children survivors even when the children are born some years after a particular disaster" [3. P. 14].

Other researchers [15-22] have taken the opposite position and agree with Breslau & Davis, who have stated, in a review of the literature, that "the preponderance of evidence from recent research does not support the proposition that disasters produce psychopathology in the majority of individuals" [23. P. 259]. A third position is that the "reactions of children to high degrees of stress is very variable and ranges from the mild and transient to an acute evolving psychopathology [24. P. 300]".

Although it is surprising to find such contradictions in the literature, the explanation probably lies in certain basic methodological difficulties that make widely acceptable conclusions problematic. One such difficulty is-a lack of precision about what constitutes a "disaster."

Here we shall focus on disasters that fall within the dimensions of unusual stress as defined within the criteria of post-traumatic stress disorder (PTSD) in the American Psychiatric Association's Diagnostic and statistical manual of mental disorders (3rd ed., rev.) (DSM-III-R) [25]. The stressor has to be outside usual childhood events and be experienced as markedly distressing. Thus, we include natural and technological disasters, war, the child's witnessing the accidental or violent death of a significant adult, being kidnapped, and other stressors of similar severity. This classification provides us with a common background, though such a wide range of precipitating stressors has accounted for some of the discrepancies in the literature. For example, Frederick [26] has claimed that victims react differently to man-made versus natural disasters. And Beigel & Berren [27] have suggested that different emotional reactions to different natural disasters depend on the victim's belief about what caused the disaster, the degree of violence it produced, and the extent to which the victim was involved with its effects.

Also, certain additional factors have been offered as explanations for children's very different responses to disasters. Two of these are intrapsychic: (1) the developmental level of the child [28,29], and (2) the child's premorbid mental health [29311, some children being resilient and others, vulnerable (24,32,33]. When stress-vulnerable children [321 were compared with stress-resilient children, researchers concluded that individual variability depended on biological and environmental differences [24,32,34-36].

Three others factors that have been hypothesized to account for the variability in children's reactions to disasters are extrapsychic: (1) the ability of the community to offer support [371, (2) whether or not the child was separated from his or her parents, and (3) the reaction of significant adults. Freud & Burlingham [38], in their pioneer study of children's reactions to World War II, showed that parental reactions were vital to how well their children fared. Later investigators have corroborated this "communicated anxiety" between parents and children.

Garmezy [33] has reviewed the methodology in the literature on the mental health of child victims of disasters. He classifies the research according to three methodological categories: clinical-descriptive, epidemiological, and quasi-experimental. The clinical-descriptive often uses single case histories, whereas the epidemiological collects several case studies and reflects on similar patterns in order to classify clinical syndromes. In disaster research, in which the disaster is the independent variable, it is difficult to meet the criteria for a true experimental design. Thus, the third approach, the quasi-experimental, uses ex post facto methods. In this case, the disaster has occurred before the

researcher arrives on the scene, which affords him or her no chance of obtaining predisaster base-level information and measures.

The quasi-experimental approach can be enhanced with control groups, although, because of the random nature of disasters, this is difficult. Smith and co-workers [39] were fortunate in having psychiatric evaluations of a community before two different types of disaster. Using postdisaster evaluations and control groups, they conclude that, for adults, disasters "contribute to the persistence or recurrence of previously existing disorders, but are not responsible for the genesis of new psychiatric symptoms or disorders" [P. 75]. It is unfortunate that their study did not include children. Gleser and associates [9] devised another way of making comparisons in a quasi-experimental design. They considered demographic variables such as age, gender, etc., and compared high-dose victims with low-dose victims in terms of these measures.

Another methodological problem is related to the effects of the high visibility of the victims' suffering on the researchers. Researchers have tended to ignore individual children who have escaped without severe or enduring pathology. As Garmezy has pointed out the more horrifying a traumatic event to which children have been exposed, the more the danger of generalizing, rather than individualizing, its consequences" [33. P. 387]. In-depth ethnographic investigation of individual children could provide information about how children cope.

As a result of methodological difficulties, the question of whether children return to their premorbid level of high or low functioning following a disaster remains moot for two reasons. First, the severity of the trauma is so great that research has focused on the traumatic event as the cause of future behavior, ignoring how the child previously responded to stressful situations. Second, it is difficult to obtain more than anecdotal case history information about predisaster levels of functioning. It would be worth the effort to collect predisaster information in disaster-prone areas. In all probability, the effects of a disaster on experienced disaster-prone populations might well be different from the effects on a community that has experienced its first disaster.

Perry [40], in his review of the methodology of mental health disaster research, has noted that one reason for the inconsistent findings is the lack of theoretical breadth. Sociological studies using a survey technique have reported small correlations between mental health problems and disasters, whereas psychoanalytically oriented studies, which have relied on interviews, have found significant emotional impairment.

Little theoretical attention has been given to learning theory, which has a history of relating conditioning to phobias [41]. Learning theory has also been shown to be effective in clinically reconditioning clients

with phobias and other anxiety disorders [42]. In studies by Dollinger and associates [43-451, fear was produced 'in children by lightning, which presented an opportunity to test the classic learning paradigm. This suggests that children would be conditioned to respond fearfully to lightning and other similarly perceived stimuli and would be less fearful of unrelated stimuli, such as school. The authors found this to be true. Also, because the children's fear was not being reinforced by more lightning, those who were fearful should, over time, have lost their fear. Two years after the disaster, a follow-up study indicated that all the children were less emotionally upset, although some were still fearful of storms.

Piotrowski & Dunham [46] used the locus-of-control concept to predict whether or not fifth-grade children with an internal locus of control would actually benefit from a low-dose experience of a hurricane. The authors hypothesized that an increase in the children's coping abilities would result from an increased sense of self efficacy. This hypothesis was confirmed in the findings, and might help to explain why some children do better than others.

Studies of specific disasters

In 1956, children watching a movie in a Mississippi cinema became victims of a tornado that devastated the building, produced injuries, and made it impossible for their parents to reach them immediately. Two studies [47,48] using unstructured interviews with the parents (the children were not interviewed) produced information about the children's emotional reactions to disaster that set the research pattern for many future investigations. The authors concluded that the well-being of the children was the result of a combination of intrapsychic factors and how families and the community responded to their children. Being in the impact zone of the tornado, suffering an injury, and having an injured family member were significant variables that correlated with emotional disturbance. The authors recorded the children's clinical symptoms, which included regressive dependency needs, enuresis, night terrors, and phobic and avoidant anxiety reactions. They also observed the children playing games repetitively, as if rehearsing ways to overcome their lost sense of a benign world.

The 1972 Buffalo Creek disaster yielded considerable research on children. Newman [4] studied 224 children by examining their projective drawings, using the Three Wishes Test, and having them tell stories. She noted that the children's developmental level, their perceptions of their family's reaction to the disaster, and the degree to which the children were exposed to the horrors of the event contributed to their emotional problems, which she claimed were considerable and enduring.

Titchener & Kapp [5] also studied Buffalo Creek victims. Eighty percent of them presented a "traumatic neurosis" with an enduring clinical picture of obsessive thinking, phobic and other anxiety responses, sleep disturbances, and grief reactions. By referring to recurring dreams that "no longer involved direct

reliving the disaster but instead depicted stressful episodes that represented repetitions normal developmental crises such as separation, abandonment . . . " [P. 298]", the authors called attention to the possibility that the emotional reactions to disaster not only affected children's development but rekindled childhood anxieties adults. This helped to "plain the interplay of parental and child reactions.

Terr's research [7,8,12] on the mental health of 26 children who had been kidnapped gives a clearer picture of how PTSD is manifested in children. Unlike adults, the children did not use denial, nor did they have intrusive thoughts. Instea4 the children interpreted unrelated events preceding the trauma as "omens" foretelling the kidnapping, so as to explain the trauma and to help themselves comprehend the incomprehensible. The children also played in a unique manner: whereas th psychological purpose of healthy children's play is to have the ego gain master through fantasy [491, in post-traumatic play children were observed to play compulsively, reenacting a pattern that did not produce mastery, but actually increase anxiety.

Terr noted that the "psychic trauma in childhood exhibits a sameness among almost all the children despite obvious developmental differences, sociocultural, backgrounds, family psychopathology, previous vulnerabilities, and community bonding" [12. P. 823]. This conclusion was not corroborated by Furman's study, [501 of bereaved children who were not traumatized by violence, but who, before the age of thirteen, suffered the loss of a parent. These children's symptoms varied and there was "no syndrome that [told] the clinician, 'This is a bereaved child'" [P 242]. Of course, the differences between these two studies might be due to the fact that bereavement without disaster produces different clinical symptoms than doe bereavement associated with disaster.

Ayalon [51], in a study of Israeli child hostages, has suggested that several factors have to be considered before predicting the inevitability of a clinical syndrome. These include the intensity of the stressor, the child's history of stress, tho developmental period of the child, and the degree to which the child was able to b active (gain a sense of mastery) during his or her captivity.

It is also important to note that children's psychopathology is not evident, o easily seen, in all situations. For "ample, despite the fact that all the children in Terr's studies were badly affected, their pathology did not manifest itself in their schoolwork. Moreover, symptoms may not have an immediate onset; and when they do appear, they may have been triggered by a symbolic, seemingly neutral even [2,52] that has activated a traumatic memory.

Sack and co-workers [53] and Kinzie and associates [54] studied Cambodian adolescents who were victims of the Pol Pot regime. They had suffered torture, loss of family members, and forced labor before coming to the United States. In both studies, the children were given the Schedule of Affective

Disorder and Schizophrenia [55] and the Childhood Global Assessment Scale Score [561 by native speakers These children had symptoms of PTSD and depression, but they were characterized as being "generally diligent and conscientious learners" [53. P. 377]. The authors attribute these children's adequate school performance to cultural factors that prize school success and to the help the children received from their ESL (English as a second language) teachers. In both Cambodian studies, the degree of emotional disturbance was not related to the amount of trauma the children had undergone, but to whether or not they had been reunited with a nuclear family member in the United States. This corroborates the importance of separation as a factor in a child's reaction to disaster.

Several studies [8,53,54,57] have noted that parents seemed unaware of their children's emotional problems. Handford and colleagues [58] studied 35 children, from the ages of 6 to 19, who were affected by the Three Mile Island (TM[l] accident. The children were given the Behavior Problem Checklist, the Children's Manifest Anxiety Scale [59], interviews, and other measurements. The results indicated that the children reported more symptoms than their parents. The discrepancy between the children's symptoms and the parents' denial of those symptoms was correlated with increased emotional problems in the children. It was difficult to know if this was because the parents were using denial or if they simply failed to see the connection between their children's behavior and the trauma.

Dollinger and co-workers [43-45] found, in a series of studies resulting from a lightning storm that killed one child and injured several others, that mothers were well aware of their children's fears. Mothers whose children were especially fearful were even more aware of their children's problems than mothers whose children were less affected; but the children's fears were positively correlated with their mothers' emotional problems. McFarlane [60,6 1], in a longitudinal study of Australian primary-school fire victims, showed that the children's emotional reactions had more to do with their family's adverse responses than with the children's actual experience of the fire.

Clinical issues

The psychiatric nosology for children illustrates the importance of considering the general category *children* within a more specific and detailed developmental framework, defining the various symptoms in terms of different ages, and taking cultural variations into account.

Because all children experience stress, it is important to point out, as Horowitz and colleagues [621 have done, that there has been little empirical evidence to suggest that PTSD symptoms are related only to extreme stressors. Also, the key concept of re-experiencing the trauma, which is described only for PTSD in the DSM-III-R criteria, has been observed in children with anxiety and affective disorders [23]. Moreover, Rescorla [63] noted that anxiety, sadness, and aggression in preschool children were

closely interrelated. Krener & Sabin [641, working with Asian refugee children, found that what the American therapist considered stressful was not viewed as such by the refugee children. This made the DSM-III-R stress criteria difficult to apply, because of the cultural differences.

Handford and co-workers [58], studying reactions to the Three Mile Island nuclear accident, correlated disaster symptoms in children with developmental level. Coping became more cognitively focused with age, although all the children seemed to regress in terms of the Piagetian scale of cognitive development. Below eight years of age, the children displayed no recognition of the danger, from 8 to 12 years of age, the children intertwined fantasy and reality. Denial occurred in one third of the sample, but no single coping mechanism was observed in most of the children.

Lystad [65] also noted that children's reactions to disasters took different forms at different developmental levels. Comparing preschool, latency, and adolescent responses, Lystad found that, although children of all ages displayed confusion and other signs of anxiety, physical symptoms and depression did not appear until the latency period, and aggressive behaviors started in adolescence.

In children who have developed symptoms, studies have revealed that the immediate clinical picture includes several signs of anxiety. The longer-term clinical syndrome consists of intrusive thoughts of the stressful event both during the day, in traumatic related imagery [66], and in nightmares. Also observed are regression to an earlier level of dependency on parent figures, denial, and symptoms of anxiety, including hyperarousal (insomnia and startle responses). Children's symptoms have been found to be dependent on how their significant adults react, and to be exaggerated when the children are separated from those adults. Their previous emotional health can be "of enormous help" [50. P. 243] to their ability to deal with a disaster. McFarlane and colleagues [67] determined that the strongest predictor of mental illness following a disaster was premorbid level of functioning.

Malmquist [68] demonstrated that when children experienced violence directly or through viewing the violence of or toward a loved one, their adverse reactions typically included a great deal of anxiety (hyperalertness, vigilance, trouble concentrating, and memory impairment). Several studies have shown that violence also contributes to the psychopathology by making it more enduring [9,10,69-71].

Stages of response by victims of disasters have been described. Horowitz [72], working with adults, noted that the first reaction was outcry, followed by denial, which was characterized by a cognitive withdrawal from the environment. This has often been described as "numbing." In the next phase there may be intrusive thoughts characterized by hypervigilance. Personal variations in these phases are determined by underlying personality dynamics.

Because of the severity of what the children have lived through, the clinician may easily be drawn into a counter transference situation that impedes the child's progress. Benedek [73] mentions denial by the clinician, who, like the parent, may be overwhelmed, tend to minimize the children's problems, and inadvertently help the child avoid talking about the untalkable. A second problem is over identification with the child's trauma. In this case the clinician experiences some of the same symptoms as the child: intrusive nightmares or repetitive thoughts during the day. A third clinical problem may be failure of the clinician to allow the children time to help themselves and thus gain a sense of self-efficacy, which has been shown to mediate stress caused by disasters [14]. It has been recommended that, because many clinicians may experience counter transference problems, peer counseling should be routine. (It should be noted that rescue personnel often suffer from the same types of problems [74] as clinicians.)

Terr [12] has suggested several therapeutic approaches to children and adolescents: psychopharmacology when appropriate, desensitization for fear responses, and abreactive techniques. Pynoos & Eth [75] developed a procedure that helped children from 3 to 16 years of age who had witnessed, or were directly involved in, violent acts to family members. The clinical procedure began with the child's expressing the impact of the trauma through projective drawings and story-telling. Then, the therapist helped the child move away from fantasy to more direct expression of his pain. Eventually the child was asked to talk about the "worst moment" of the trauma. The authors agreed with Ayalon and others [51,76,77] that it was clinically helpful to be direct and open in discussing the trauma. In the sessions the therapist also rehearsed with the child the future situations that he or she might encounter as a result of the trauma.

The function of the community

The role of the community following a disaster has been- shown to be so important that Erikson [2], referring to the Buffalo Creek tragedy, wrote that the clinical picture of the victims was "as much a reaction to the shock of being separated from meaningful community bases as to the actual disaster itself" [P. 302]. Galante & Foa [78] examined how different Italian communities responded to a devastating earthquake. The children fared better if their community was prepared and able to give support to the victims.

Because of the ever-present possibility of war, Israel has established preventive community measures for potential disaster victims [37]. Kaffman [79] has described Israeli children who were very near the front lines of war. The research indicated that the level of "emotional disturbance among these (kibbutz) children did not rise during the war or in the following two years" [P. 492]. The low incidence of mental health problems was attributed to the preservation of normal, daily, peacetime routines, the stability of

the peer groups in which the children played, and the advance preparation for attack, including open, frank discussions of the inevitable deaths and injuries.

The greater the disaster, the more important community responses become, because resources will be drained, and those needing help will have to be subjected to triage. Lima and his colleagues [80] have pointed out that in this century, 86.4% of the world's disasters have been in the developing world, where death and injury are more likely and where the population is younger than in industrialized countries. They [80,81] have developed a modified version of the Self-reporting Questionnaire that can be used as a screening device for early detection of persons at risk for mental disorders following a disaster.

Lindy and co-workers [52,82] have hypothesized that communities surround themselves with a "trauma membrane," to screen out upsetting information. The permeability of the membrane varies among disasters, allowing easy access in Buffalo Creek but little access after the Beverly Hills Supper Club fire. In the latter case the trauma membrane not only protected the individual from more trauma but al tended to impede outside help and healing.

Because of the trauma membrane, many postdisaster communities do not ac help. Thus, outreach programs advocate an active approach that seeks out children and their parents, goes into schools, and works with the media [83-91]. Klingman [90] organized a community disaster program for Israeli children: he formed two teams, one to help teachers focus on the mental health of the children, and second to provide triage consultation to identify the children most in need of psychological services.

Blom [91] has provided specific information, according to a time sequence, help teach parents and teachers to identify symptoms of stress in children at different developmental levels. Rigamer [92], working with a distressed American community in Afghanistan, placed particular emphasis on helping parents realize they needed to become available to their children. He taught parents that children between 5 and 7 years of age were concerned with separation anxiety, whereas children from 7 to 11 years of age were more troubled about bodily harm. He suggests that adolescents be told the truth about the danger and be enlisted as helpers. Both Blom and Rigamer comment on the value of immediately resuming normal routines, including returning to school.

Lystad [65,93] has prepared a variety of story-telling and drawing technique and has assisted others [94,95] in developing school-based and community-help manuals.

Conclusion

We have examined the issues surrounding the mental health of children who are victims of disasters. We have reviewed the findings and the problems associated with (1) the nature and extent of the disaster trauma; (2) the influence of the family and the community; (3) the resilience or vulnerability of the child; (4) the symptoms, their onset and duration; (5) the predisaster level of functioning; (6) cross-cultural differences; (7) therapeutic approaches; and (8) methodological considerations

None of these issues is fully understood. But there can be no denying the immensity of horror to which some children have been subjected. As our visit to mental health clinic revealed, each disaster, no matter how it appeared to affect on a single person, spun a web that entangled family, friends, neighbors, and c leagues. Each one was affected in a different way, to a different degree, over different time period-sometimes down through generations.

The psychological consequences for children are metaphorically like the v disasters from which they have sprung: they flood victims, carrying waters beyond what was once imaginable, leaving silt over children's eyes through which they which they will have to seek their future. In the process, the stem of family may bend or break, an the shadow of community may give way or offer comfort.

As we left the clinic, we realized we did not know a great deal about why some children were still growing, whereas others had withered.

Many questions remain unanswered: the nature of resiliency and how it can be fostered in the vulnerable; the influence of family and how that influence can be enhanced; the significance of children's age; the degree to which a community may mitigate the effects of disaster.

The solutions we learn from disasters may ultimately be applicable to other forms of psychosocial stress: physical and sexual abuse, violence, and the effects of dislocation and separation from family and culture dig so many immigrants and refugees are currently experiencing. We need better techniques for identifying and treating children, whose difficulties often go unnoticed, who suffer in silence, or who are outside our society's cultural currents. The help we can give children now may obviate the need for later generations to bear their burdens, or those of their children. It may even help us to resolve the traumas we all once suffered as children.

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