



School reactivation programs after disaster: could teachers serve as clinical mediators?

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Professionals who search the Medline database for publications in the areas of “trauma/disaster” and “school interventions” encounter disappointing results: only a few articles match the requested terms. The September 11, 2001 terrorist attacks, however, have produced reports on several initiatives that assess the post-event responses of school-age children as a primary step toward allocation of resources and future interventions [1,2]. The situation before September 11 reflects the limited awareness in the field of mental health disaster treatment regarding important resources that may be enlisted for the psychological relief of children and the whole community. It also may reflect the limited degree to which the school system is open to mental health professionals and initiatives that originate outside of the system.

The following example demonstrates the complexity of working within a school environment after a disaster, particularly when teachers are expected to play a more active, “therapeutic” role in the relief process. In August 1999, 2 weeks after a devastating earthquake left approximately 600,000 people homeless in Turkey, the authors visited one of the temporary tent cities established in the disaster area as part of an Israeli team. Inside a tent full of toys, the authors found some confused children who were investigating their

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surroundings while others were drawing silently. At the entrance to the tent, a large sign captured the authors' attention. The translator interpreted the sign: "Children, please don't cry because your teachers will be sad." We reflected on the various meanings of this message based on their understanding that children's ability to express disturbing emotions in the presence of caring adults may play an important role in the prevention of long-term suffering.

Can teachers serve a mediating role when, as in the case of a mass disaster, therapeutic needs surpass the available traditional clinical resources? Can they meet this need despite feeling sad when confronted with traumatized children? Based on our experience, the answer is that if they are properly trained and supervised, they can.

In this article the authors review the data concerning the effectiveness of mental health interventions after disasters and offer a conceptual framework for intervention with school-age children, in which teachers serve as the main therapeutic resource. The authors also present and discuss data concerning the school reactivation program implemented in the city of Adapazari, Turkey.

Mental health interventions among children after disasters

In the case of a mass disaster, as opposed to a limited traumatic event, the development and implementation of psychological interventions should draw on an understanding of the disaster syndrome. This syndrome includes massive individual and social losses (eg, physical, economic, material, functional, social) and a clinical picture that consists of grief, dissociation, and specific posttraumatic symptoms that may last for months or even years [3].

Effective treatments for traumatized children usually involve cognitive-behavioral elements, including the psychoeducation of children and parents regarding the nature of the disorder, some form of exposure work coupled with imagery or relaxation exercises, and a restructuring of cognitive dysfunctions [4,5]. Empirical data concerning interventions in the area of mental health after disasters clearly support intervention effectiveness. These data also hold for programs developed in Western societies and applied in non-Western cultures [6–10]. A recent follow-up of children and adolescents 1 year after their exposure to war trauma showed that specific and nonspecific classroom-based interventions using debriefing and cognitive-behavioral techniques were similarly effective [11].

Among a cohort of young adults who were followed up 5 to 8 years after surviving a shipping disaster as adolescents, Udwin et al [12] found that the individuals who had received help and support in school in the aftermath of the traumatic event were likely to report fewer posttraumatic symptoms years later. Despite the small amount of information available concerning the help provided to the adolescents, the researchers suggested that support in school might ameliorate psychological difficulties.

Two years after Hurricane Iniki hit Kauai, Chemtob et al [13] provided individual or group treatment to children who exhibited the most severe

posttraumatic symptoms (upper 5%) identified through school-based screening. The intervention consisted of four sessions: (1) safety and helplessness, (2) loss, (3) mobilization of competence, and (4) issues of anger, termination, and moving forward. The group treatment modality yielded notably better results than did the individual one in terms of treatment completion rate, although both modes of intervention generated a comparable symptomatic decrease that was maintained 1 year later. The treatments were provided by professionals and were aimed at the 5% of the school children who were most symptomatic.

Postdisaster support at school is one of the significant predictors of reduced posttraumatic stress disorder (PTSD) after disasters [12]. School-based intervention models may include single-session debriefings (see later discussion), small group programs, and class activation programs. Small group programs within the school setting particularly benefit high-risk children or children who are more agitated and need closer attention than can be provided in the classroom [14,15]. One such example is Smith et al's [16] three-session program, in which small groups of children are taught recovery techniques using psychoeducation, imagery and cognitive techniques and exposure practice. Each session is dedicated to one domain of the posttraumatic syndrome: intrusion, avoidance, or arousal. The program includes a fourth session for bereaved children and a session with parents to provide information and suggest ways to help children.

Within the class activation model, Galante and Foa's [7] pioneer work offered a program that consisted of seven monthly sessions to children who survived an earthquake in Italy. The sessions allowed for discussion and coping with related feelings and resulted in a significant reduction of symptoms. Other models also use expert mental health professionals in school settings with or without the presence of the teacher [15,17,18]. Programs implemented in the classroom may vary in focus, scope, and depth, but all are intended to minimize stigma, teach about normal reactions to stress, and reinforce the expectation that the children will soon resume their roles as students [15,19,20].

It is important to emphasize that after a disaster the teachers themselves may be struggling with severe posttraumatic symptoms and personal losses and consequently may feel unable or unwilling to get involved in any kind of postdisaster intervention with their students. Most teachers, however, respond to guidance and support and are able to retain their role and continue to offer the children appropriate containment. One frequently may observe suffering teachers who, in their efforts to avoid dealing with disturbing reminders of the event, point out that children have no need to talk about their traumatic experiences [21], at least not in school.

In a disaster, teachers themselves may be exposed as dysfunctional or unhelpful in front of their students, particularly when the class or the school itself is the locus of the event. For example, during the initial training for a class intervention program in New York City after September 11, 2001, teachers reported difficulty in trying to protect the children while simultaneously being incapacitated by their own fears, by images of the World Trade Center towers collapsing, and by their concerns about loved ones assumed to be in the

buildings. When such teachers are asked to participate in a relief program, their own traumatic experience, sometimes felt as humiliating, must be addressed.

The rationale for teacher-mediated interventions

The different approaches to school-based interventions after disaster can be summarized as follows. Some approaches address the whole class [7,11], others are geared to small groups [13,16], and still others combine both approaches [9]. Some approaches restrict their classroom interventions to psychoeducation [9], and others augment their approach with cognitive-behavioral techniques while working with small subgroups [16]. These latter approaches may allow for teacher participation. Specific group protocols are reserved for students screened for risk and psychopathology [9,13].

How should the most appropriate intervention in schools after traumatizing events (eg, accidents, terrorism, war, natural disaster) be planned? The following parameters must be taken into consideration:

- The scope of the event (eg, isolated/extended, localized/comprehensive)
- The severity of the event (losses of life and property, supply of basic needs)
- The resilience of the population (eg, public health, socioeconomic status, history of traumas)
- The resources available (eg, economic, professional: manpower and knowledge)
- The readiness of the system (eg, leadership, openness, collaboration)

Extended and comprehensive traumatizing events deplete resources and exact extensive losses, including losses to the communal infrastructure. Under such conditions, teacher-based interventions are essential not only to address the large numbers of victims but also to rehabilitate the school as one of society's central institutions.

The following discussion explicates the rationale for teacher-mediated intervention, with particular emphasis on the perspective of teachers in the implementation process. **The rationale and the teachers' perspective are considered with respect to three questions that arise either sooner or later (usually sooner) in encounters between the child mental health consultant and the school team: "Why (and when) to intervene?" "Why (and with whom) to intervene in the school?" "Why me (the teacher)?"** These questions refer to the need for and proper timing of the intervention, the appropriate location and participants, and the suitable professional to lead the program. For the program to be designed responsibly and implemented empathetically, these questions must be addressed critically, thus paving the way for teachers to become true partners.

Why (and when) to intervene?

The answer to the question of why and when to intervene is not obvious, particularly after witnessing the resilience shown by children and knowing that

most recover from their traumatic exposure within months [22,23]. From the teachers' point of view, most children who were mildly or moderately exposed to an event maintain their normal functioning in school. This is perhaps one of the reasons why parents and teachers often underestimate the extent of children's suffering after a traumatic event [24].

For example, Pfefferbaum et al [25] pointed out that after the terrorist bombing in Oklahoma City in 1995, administrators and teachers thought that continued attention to the bombing was unnecessary and were concerned that such attention might even prolong the children's recovery time. When decisions are made independently by each school rather than by a central agency, such a reaction may lead to a great variation in the availability of school-based intervention programs. As the authors found 30 months after the 1991 missile attacks on Tel-Aviv, however, the apparently normal functioning of children in school and in daily life was mostly maintained in the face of internal strife [23].

Data concerning psychopathology rates among children and adolescents in the first months after mass disaster reveal that 25% to 80% of them suffer from different psychiatric syndromes [26,27]. For example, a recent assessment reported by the Partnership for the Recovery of the New York City Public Schools (unpublished material) showed that 6 months after the September 11 terrorist attacks, children in New York City schools (grades 6–12) developed higher rates of psychopathology compared to pre-September 11 community estimates outside of New York City. These rates included PTSD (11%), generalized anxiety or overanxious disorder (10%), separation anxiety (12%), agoraphobia (15%), panic (9%), major depression (8%), conduct disorder (11%), and alcohol problems (5%). One can only imagine the impact of a critical mass of suffering children on class functioning and school culture (eg, capacity to attend and concentrate, level of energy and playfulness, level of violence, rate of absenteeism).

Comprehensive management of the enormous psychosocial needs within a community of children after a disaster requires that ordinary mental health service delivery practices be complemented by endorsing a preventive public health perspective. This perspective prescribes adaptations in parameters such as setting (from office to school), format (from individual to group/class), and length (from long to short term) and modifications in the teacher's professional role. These issues are discussed later.

The timing of the implementation of school-based interventions depends on the availability of professional resources, appropriate programs, and housing for these programs. These interventions are preventive in nature and are geared toward the psychological relief of the children and the reactivation and revitalization of the school as an institution. The authors suggest that they be implemented as soon as the requirements of place (tents, prefabricated housing), personnel (teachers, counselors, consultants), and content (intervention protocols) are met. To adapt to particular events and cultures (eg, local norms and rituals concerning grief and regulation of intimacy), specific intervention programs must be tailored along the lines of generally formulated principles. The role of the consultant or planner is to facilitate the application of professional guidelines.

Depending on location, magnitude of the disaster, and allocation of resources, such programs should be initiated between 1 and 12 months after the disaster.

Why (and with whom) to intervene in the school?

The answer to the question of “why” to intervene does not guarantee a similar answer to the question of “why and with whom” to intervene in school. Teachers and school administrators tend to see the schools as educational centers, whereas they view hospitals, mental health clinics, and trauma centers as treatment facilities for individuals who exhibit the psychopathologic consequences of a disaster. This view may hold for the most severely affected victims. After a disaster, however, most children exhibit moderate levels of symptomatic responses, which are stressful but also manageable. For these children, social, educational, and practical considerations prescribe that the school is the most appropriate place for intervention.

Klingman [15] underscored the unique role that schools may play in responding to this challenge. Aside from the family, school is a child’s most natural support system, having a traditional formal status in society. In general, preventive mental health interventions in school may abolish the “psychiatrization” of normal reactions and the stigmatization of children. Programs implemented in school may benefit from the intimate and long-lasting relationships developed between children and teachers. School provides numerous opportunities for personnel (teachers, counselors, and school psychologists) to observe and follow-up children and serve as nonprofessional mental health workers who, under normal conditions, deal with situational and developmental crises supervised by consultants. The regular curricula of most schools already incorporate preventive interventions in other areas of mental health (eg, drug abuse, sex education, social-emotional competence, violence prevention).

Support from classmates and teachers has been recognized as a significant predictor of fewer posttraumatic symptoms after a major disaster. Such support prevents withdrawal and isolation [28,29]. The class setting provides a predictable routine, clear expectations, consistent rules, and immediate feedback, which makes it a suitable place to enlist curiosity and engage learning skills in disaster-related classes. For example, kids could be invited to explore topics such as the causes and consequences of natural and human adversities (eg, geography, climate, international relations, economy, psychology).

Finally, there is widespread reluctance among disaster victims to seek professional help from traditional community institutions, such as clinics, hospitals, and trauma centers [3,30]. All these reasons make school one of the most suitable settings for psychological disaster relief programs.

Why me (the teacher)?

Once the rationale and the setting for the intervention have been clarified, a third question arises for teachers and mental health professionals alike: “Why

me?” Teachers may be reluctant to assume a role in mental health interventions because of their lack of training and the description of the role. Child mental health professionals may feel disinclined to step out of their traditional role and enter an educational setting in which they could find themselves lacking properly modified protocols. In practice, these difficulties may translate into empathic failures in cooperation between the educational and mental health teams. To prevent inefficient competition, resistance, or paralysis in the face of the mounting needs of victims, leaders in both fields may wish to endorse a systemic integrative perspective that allows responsible teamwork.

Under routine conditions and even after a localized trauma that affects a single student or class, school counselors and school psychologists—where available—are the first-choice professional resources for emergency interventions. Under conditions of disaster or large-scale traumatic events, however, it is recommended that these professionals adopt a supervisory role, taking responsibility for managing and coordinating the entire organizational process (which also may include outside professionals) rather than dealing directly with the victims. This calls for the empowerment and use of “mediators” as therapeutic resources close to the victims to fill the slots vacated by the professionals [3].

Practical (cost effectiveness, limited resources) and conceptual (“normalization,” modeling) motives mandate that disaster relief efforts involve as many children as possible, working with them in groups rather than as individuals. School personnel usually develop trusting relationships with children and parents, and most personnel are ready to be educated to serve a therapeutic role [15,20,28]. Teachers may allocate time to deal with traumatic experiences, model the children’s responses, reinforce emerging coping skills, provide factual information and correct rumors, facilitate mutual support, identify children who are suffering, and prepare the class for future experiences. As part of the relief efforts, teachers also may encourage students to contribute actively to their family, school, and community. In summary, committed and trained teachers may turn out to be excellent mediators to provide mental health relief to large groups of children affected by trauma.

The three-phase process

In addition to clarifying the teachers’ questions, implementation of teacher-mediated disaster relief interventions in school must be facilitated by an important three-stage process. This process includes three crucial transitions: from “past” to “future,” from “teacher” to “educator,” and from “I” to “we.”

From “past” to “future”: restructuring traumatic experiences

Mass disasters affect not only students but also teachers and school administrators, whose individual vulnerability, personal losses, and particular exposure may result in the symptomatic reactions observed after disaster (ie, posttraumatic

symptoms, grief, and dissociation). As in the case of children, most affected teachers recover their functioning. Some teachers might exhibit moderate to severe posttraumatic symptoms, however, and may prefer to avoid any activity related to the trauma. The authors' experience indicates that most exposed teachers benefit from participating in some kind of debriefing that allows them to process and restructure their personal experience.

The aims of classical group debriefing are to allow traumatic experiences and flooding reactions to be expressed, facilitate relaxation, promote cognitive organization and self-control, identify and mobilize internal and external resources, set realistic expectations, restore self-worth and hope, and prepare participants for future experiences [31]. In the case of teachers, understanding their own responses may serve to clarify similar ones that their students might be experiencing.

Debriefing may be an efficient tool to help children and adults [31,32]. In some individuals, however, early exposure to the memory of a traumatic event may interfere with the normal affective-cognitive processes that lead to their recovery and may result in neutral effects or even an exacerbation of symptoms [33,34].

Most debriefing protocols share a similar format. After reporting the facts concerning their trauma-related experiences, participants are encouraged to focus on their initial thoughts and then on their emotions, images, and sensations related to the event. Rumors and misinformation are corrected, and psycho-education is offered to participants. Participants explore personal and communal coping resources and use creative imagery to return to the "here and now," recreate a positive future in their fantasies, and construct plans of action.

More than 1 year after the September 11 terrorist attacks, the authors had the opportunity to implement a modified debriefing intervention with a group of New York teachers. During the intervention, they processed the traumatic events they all had shared. Despite the fact that such a long time had elapsed since the event, all the teachers reported general improvement, expressed their satisfaction with the effects of the intervention, and emphasized that this was their first opportunity to process their experiences in a supportive setting. Controlled studies are still necessary to assess empirically the effectiveness of this intervention.

From "teacher" to "educator": the value of empowerment

In the second phase of the process, teachers are directed to assume their role as "educators" in an extreme situation they have never before encountered and for which they have not been didactically equipped. To this end, they must be empowered and instructed. "Empowerment" refers to a process of involvement in which individuals supplant their helpless stance by recovering their dignity and self-esteem and by enhancing their critical self-awareness, their control over resources and objectives, their sense of personal and collective responsibility, and their self-efficacy [35]. The problem of empowerment usually arises once social agents, individuals, or groups are unable to assume their right to meet the

challenge of fulfilling a social role or duty. In the case of professionals, empowerment also results in transforming and upgrading their traditional role.

The traditional role of teachers relates primarily to imparting knowledge and developing skills. This role is executed within a pedagogic framework whose goal, among others, is to prepare students for civil life. For modern teachers, the field for applying this role is the classroom and its didactics. A disaster shatters the relevance of most fields of application, however, and customary didactics fail to support teachers' activity under such conditions. Teachers may find themselves "out of role" and helpless with respect to their students, unable to maintain their pedagogic position. To rehabilitate themselves, they must undergo a process of empowerment in which they are delegated new responsibilities for specific didactics.

The process of empowerment begins with the participants' awareness of an unmet need and their desire to change and define a vision or a goal for a new direction. After connecting (with other individuals and resources) and learning (new skills or information), participants expand their range of alternatives and increase their social network and their self-esteem, thus counteracting feelings of isolation. They are ready for mobilization in the area designed for change. In this process, the role of the mental health professional is to serve as collaborator and facilitator, teacher, mentor, and supervisor. Supervisors must respond to teachers' needs by encouraging them, making them feel cared for, and helping them develop a sense of belonging, meaning, and purpose.

Through empowerment, teachers may be helped to adopt and exercise a transformational leadership position [36] that can be translated practically into (1) formulating a vision (eg, "regaining our strength and excelling in academic achievements"), (2) providing individualized consideration (being sensitive to the individual needs of children and parents), (3) fostering an atmosphere of stimulating cognitive and creative processes (intellectual coping that supports initiatives), and (4) transmitting positive expectations (concerning the children's capacities and potential). Transformational leadership serves to restore the three existential dimensions damaged by disaster [37]: space (as the domain of human activity), time (that has been shrunk to a "continuous present"), and self (that has been defeated). First, vision acts to recover self-image and project it in time and space. Then, individualized consideration reconstitutes security and trust, whereas cognitive stimulation recruits the active agent in a future-oriented creative adaptation. Finally, positive expectations offer an integrated view of capability and direction to be acknowledged by the individual. The process becomes a formative educational moment.

Awareness of the newly arising basic needs of students and the attitudes and roles expected from the teachers can be elicited easily by a simple exercise. In this exercise, teachers are asked to review their lives and identify one or two individuals whom they remember as cherished and as having exerted an influence by important transformations they generated in some personal aspect of the teachers' life. This exercise usually elicits the following statements: "She was always there when I needed her." "He believed in my potential." "She conveyed

her trust in my capacity to succeed.” “For him every breakdown was an opportunity for breakthrough.” The descriptions of the behaviors and the personal characteristics of the chosen individuals contribute significantly to clarifying the kind of role model required in the classroom, which facilitates the important transition from “teacher” to “educator.”

From “I” to “we”: continuous supervision of a support group

Teaching in schools after disasters is a difficult task. Managing the regular curriculum while integrating intervention programs for traumatized students requires teachers to invest enormous affective, behavioral, and cognitive resources. The continuous support and supervision of the staff become a central component in any teacher-mediated intervention. Supervisors must be aware of the larger context and dynamics of their own systemic intervention. If properly executed, supervision provides a much-needed holding environment for teachers [38] in which they are offered encouragement and mutual support and given an opportunity to analyze previous meetings of the program, share experiences and doubts, and discuss and collaboratively prepare the detailed contents of the next meeting.

Assessment of an intervention: Adapazari, Turkey, 1999

Background

On August 17, 1999, the East Marmara region of Turkey suffered a devastating earthquake that measured 7.4 on the Richter scale. Officially, approximately 18,000 people died and approximately 150,000 homes were destroyed, which left thousands of families homeless. These consequences, combined with the numerous aftershocks and rumors that the country’s largest city, Istanbul, would be next, sent waves of fear throughout the nation. Local and international help was recruited to rescue and provide basic needs for the survivors housed in temporary tent cities. Months later, thousands of families were relocated to prefabricated houses in temporary villages. The data in this study were collected 4 to 5 months after the earthquake.

The intervention

The following section describes the three-stage process as implemented after the 1999 earthquakes in Turkey by the principal and teachers at a school in a prefabricated village that consisted of 320 families [10,27]. The village is adjacent to the city of Adapazari, which was severely damaged by the earthquake. The process was initiated with a group session (modified debriefing protocol) conducted with the objective of processing and restructuring the traumatic experiences, normalizing responses, and enabling trauma-related affects (anger, guilt, helplessness, hopelessness, grief) to be expressed and managed. This

process was meaningful for the participants and for the training. For the first time, teachers were able to express and deal effectively with feelings of guilt, shame, and anger, which led to expressions of humor and more vital and optimistic views concerning the future. However, teachers were still reluctant to take responsibility for the intervention and emphasized their commitment to the regular curriculum.

Subsequently, the authors helped the teachers redefine their role as “educators” and “leaders” vis-à-vis the students through the experiential activity described previously. This activity significantly increased the motivation and commitment of the entire educational staff. The teachers and the principal recognized that in times of disaster they must enhance their role to match complementary needs in the students rather than merely cover the regular curricula. In line with their transformed position as educators, a local professional team taught them about issues related to children’s responses to trauma and trained them in the implementation of a disaster-related school reactivation program. This local team also was responsible for ongoing weekly training, supervision, and support.

The teachers took charge of the class activation, in which all children in the class participated. Based on the authors’ findings concerning the important role played by parents regarding children’s responses to traumatic events [39–41], the intervention began with an introductory meeting with the parents to engage them in the process, provide information related to the program, and educate them about the children’s expected reactions to the disaster.

The remaining eight 2-hour meetings focused on various aspects of the recovery process: restructuring traumatic experiences, dealing with intrusive thoughts, establishing a safe place, learning about the earthquake and preparing for future earthquakes, mourning the ruined city, controlling body sensations, confronting posttraumatic dreams, understanding reactions in the family, coping with loss, guilt, and death, dealing with anger, extracting life lessons, and planning for the future. The program combined psychoeducational modules, cognitive-behavioral techniques, play activities, and ongoing documentation in personal diaries.

Subjects

The sample included 202 displaced school-age children (grades 1–5) (44% boys, 56% girls, mean age \pm SD = 8.2 \pm 1.3). The authors also obtained baseline control data from 101 children who were residents of the city of Izmir, located approximately 300 miles from the epicenter and not directly affected by the earthquake (46% boys, 54% girls, mean age \pm SD = 8.83 \pm 1.13). The children were assessed after the project had been approved by the Ministry Board of Education.

Instruments

Children filled out two measurement scales: (1) the Traumatic Dissociation and Grief Scale [42] and (2) the Turkish version [43] of the Child Posttraumatic

Stress Disorder Reaction Index (CPTSD-RI) [44]. The Traumatic Dissociation and Grief Scale consisted of 23 items that covered dissociation and grief reactions during the previous 2 weeks, rated on a three-point scale: 1 = absent, 2 = sometimes present, and 3 = often present. The authors identified four factors with acceptable internal consistency and good validity. Two significantly correlated factors reflected the “grief” aspect of the reaction, namely irritability (eg, I feel depressed or am in an irritable mood) and guilt/anhedonia (eg, I feel guilty). The other two factors, also highly correlated, represented the “dissociative” quality of the response: body/self distortions (eg, I find myself in places without knowing how I got there) and perceptual distortions (eg, I feel like I’m in a movie and not in real life). Results are presented in this article with respect to the mean of the two factors in each domain. The Turkish version of the CPTSD-RI covered 20 reactions to the traumatic event that match the diagnostic criteria for PTSD: intrusion, avoidance/numbing, and arousal.

The children also were administered a traumatic exposure questionnaire to determine the presence of several risk factors, such as stressful or traumatic experiences before the earthquake (eg, losses, hospitalization, disasters, divorce, birth of siblings) and their individual exposure to trauma (eg, personal injury, being caught under the rubble, seeing dead or severely injured individuals, loss of friends or close and extended family, lack of sleep and food in the days after the event). A risk index that reflected the extent of risk associated to each child (ranging from 0–5) was computed by summing up the risk factors reported by each child.

Procedure

Four months after the earthquake, before the children received any organized mental health intervention, teachers who were specially trained by the supervising team interviewed the children individually at school. After the interview, which lasted approximately 20 minutes, all personal identification was removed from the questionnaires and a code was assigned to each child. The intervention lasted 4 weeks (two meetings per week), and 6 weeks later the children were assessed for a second time.

Results and discussion

An analysis of variance with repeated measures was performed, in which class (grades 1–5) and sex (male/female) served as between-subject factors and time (before/after intervention) served as a within-subject factor. The analysis yielded significant changes after the intervention for the three symptom domains: posttrauma [$F(1, 198) = 11.14, P < 0.001$], grief [$F(1, 198) = 261.75, P < 0.001$], and dissociation [$F(1, 198) = 16.22, P < 0.001$]. In the case of posttraumatic and dissociative symptoms, the mean severity decreased significantly, as expected (Table 1). Grief symptoms showed a significant increase after the school reactivation program, however.

Table 1
 Posttraumatic, grief, and dissociative symptoms before and after school reactivation program^a

Posttraumatic symptoms				Grief symptoms				Dissociative symptoms			
Before		After		Before		After		Before		After	
Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
32.2	13.9	28.1	12.9	17.9	3.8	22.4	2.0	13.2	2.8	12.2	2.1

^a $n = 202$.

The time \times class interaction was significant for dissociative symptoms [$F(4, 184) = 3.78, P < 0.007$], which reflected a greater symptomatic decrease in the lower grade (means = 14.4 and 11.5) compared to the higher ones (means = 12.5/11.7, 12.8/12.2, 13.3/12.5, and 12.7/12.8). The time \times sex and the time \times sex \times class interactions were not significant (all $P > 0.05$).

As Table 2 indicates, the percentage of children with severe and very severe posttraumatic symptoms, reported to be associated with a diagnosis of PTSD [44], decreased from 30% to 18%. The latter rate was similar to the one (15%) found in a baseline control group in the city of Izmir [10,41]. 27.5% of the children moved to a category of a higher posttraumatic symptom severity after the intervention (1% from “doubtful” and 4% from “mild” to “severe”). One third of the children (33.5%) remained in the same severity category and 39% moved to a lower category.

Comparison of the three subgroups of children—those who remained in the “severe” category, those who decreased from a baseline “severe” category, and those who increased to a posttreatment “severe” category—revealed no differences in terms of risk factors. It is important to note, however, that 41% of the children whose level of posttraumatic symptoms increased to the “severe” category were in the same class in school (grade 4). A more meticulous inspection of the children in this class compared to the other classes revealed several factors that may explain the authors’ finding: They reported to have suffered more trauma/stress episodes before the earthquake and more losses because of the earthquake; therefore, their risk index was higher. Although grades 3 and 4 were significantly larger than the others (which made program

Table 2
 Percentage of children according to level of posttraumatic symptoms before and after school reactivation program^a

Baseline	Postintervention			
	Doubtful	Mild	Moderate	Severe/very severe
Doubtful	1	1.5	3	1
Mild	5	6	11.5	4
Moderate	4	6.5	20	6.5
Severe/very severe	3.5	3.5	16.5	6.5

^a $n = 199$.

implementation less manageable in these classes), only grade 4 was characterized by higher risk.

Fig. 1 shows that the posttraumatic symptoms of children before the intervention increased significantly as the level of risk increased [$F(5, 203) = 3.47, P < 0.005$]. Duncan *post hoc* tests revealed that the significant increments occurred at “2 and 3” and “4 and 5” risk factors. A significant symptomatic decrease was observed in individuals with a score equal to or higher than 2 on the risk index. At the postintervention assessment, the significant differences between the risk factor subgroups disappeared [$F(5, 193) = 0.63, P > 0.05$]. Children with risk index of “0 and 1” did not exhibit any symptomatic change after the intervention, probably because of their low preintervention symptomatic response.

The authors also found that the program generated a significant decrease in posttraumatic and dissociative symptoms in subgroups of children regardless of their reports regarding personal injuries, human losses, and exposure to death or severe injury. The symptomatic decrease also was observed in children with one, two, or three traumatic events in the past. Children with four or more traumatic episodes in the past (highly symptomatic) and children who had no traumatic episodes in the past (mostly symptom free) reported no significant symptomatic changes after the intervention.

In contrast, symptoms of grief increased among the various subgroups and at a similar level. This finding, although initially surprising and discouraging, may be understood in different ways. First, it may represent that the normal grieving process has been set in motion once dissociative symptoms have been relieved. Second, it may reflect insufficiencies in intervention (eg, technique, length) in dealing with and containing depressive symptoms. Finally, it may be the result of

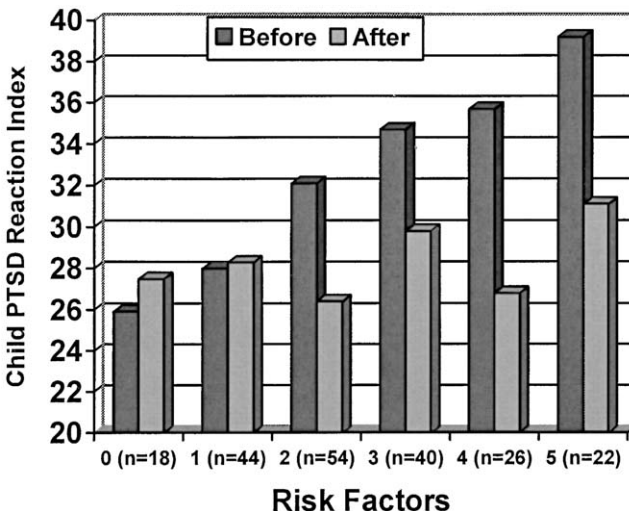


Fig. 1. Posttraumatic symptoms of children before and after the school reactivation program.

“reporting bias” caused by children’s reluctance to report on affective symptoms before the intervention and their having gotten “permission” to do so by the new experience in class. This explanation may be plausible in the cultural context within which the program was implemented. Let us recall the sign hanging in the children’s tent: “Children, please don’t cry because your teachers will be sad.” This sign demands that the children renounce their expression of grief to protect their caretakers, who may prove vulnerable. In their reconstituted role in the intervention program, the teachers may have enabled children to assume theirs and communicate their sorrow.

It seems that as children were allowed to connect with and process distressing issues, such as loss, guilt, anger, and trauma-related nightmares, the significant decrease in their posttraumatic and dissociative symptoms occurred, along with a simultaneous increase in their grief responses. For many of the traumatized children, this was the first opportunity they were afforded to cope openly with their pain after having been granted legitimacy by responsible and caring adults ready to contain their emerging affects.

Six months later, the authors interviewed a group of 26 children who still had moderate to severe posttraumatic symptoms and were candidates to participate in a group therapy intervention. Analysis of the grief score of these children at the 6-month follow-up (mean = 19.7) yielded a significant decrease from the post-treatment assessment (mean = 23.2) [$F(1, 25) = 23.6, P < 0.001$] to a level that was slightly higher than the one obtained at the pretreatment assessment [$F(1, 25) = 6.42, P < 0.05$] (mean = 17.2).

The study’s results, supported by feedback from teachers and students, suggested that the program facilitated the availability and containment of traumatic material, which allowed the initiation of an adaptive grieving process. The teachers, who were initially resistant to take responsibility for the implementation of such a relief program, reported significant accomplishments: students showed an increased capacity to concentrate in class and learn the regular curriculum, the climate in the classroom improved significantly, and teachers felt more motivated, better able to control the teaching process, and closer to their students.

The study’s results raise an important question: Should children with no risk factors or children who report no symptoms after a disaster participate in a reactivation program for the entire class? Our response is cautiously affirmative, for several reasons. First, after mass trauma and disaster only a minority of children (usually less than 20%) exhibit neither risk factors nor symptoms. Second, the intervention is defined as a rehabilitative project geared to the whole school as a community whose format and contents serve to prevent children who participate from being labeled. Third, nonsymptomatic children are a valuable source of support to the others and may serve as models for effective coping. Finally, the increase in grief symptoms was moderate, reached a similar level among all the subgroups of different degrees of exposure and vulnerability (eg, yes/no injuries, losses, witnessing death, past trauma), and significantly decreased 6 months later.

The study's results raise another important question: Should children with high scores on the risk index participate in the whole class activation? As data presented in Fig. 1 show, the class program generated a decrease in the posttraumatic symptoms of children with two or more risk factors. Although some students remained with severe symptoms, the class as a group showed significant improvement. A reduction in almost 50% within 4 weeks in the rate of estimated PTSD (from 30%–18%) through an intervention performed by supervised teachers seems valuable and is comparable to the one reported by Goenjian et al [46] after the earthquake in Armenia (from 60%–28%). The latter intervention was implemented by highly skilled mental health professionals that used group psychotherapy (four half-hour sessions) in small classrooms (35 children divided in two groups) followed by an average of two 1-hour individual psychotherapy sessions.

Taken together, the study's results suggested that an integrative efficient and cost-effective program for school children exposed to disaster may need to combine teacher-mediated whole class activation and professional specific interventions (individual or group) for children who suffered repeated traumatic exposure before the disaster (eg, accidents, losses, injuries, surgery, migration, divorce) and for children who remained symptomatic after the intervention. In the case of the present sample, children who remained with "severe" posttraumatic symptoms after the class activation participated in a short-term group intervention for parents and children (approximately 3–5 dyads/triads in each group) led by therapists. Results concerning this intervention are presented elsewhere.

The main methodologic limitation of the study is the lack of a control group. A comparable group in terms of exposure and demographics would have allowed the authors to associate the symptomatic changes exclusively to the intervention rather than to the time elapsed. It should be kept in mind that the class intervention was brief (1 month), that it took place approximately 6 months after the earthquake, and that prior studies concerning earthquake victims reported on the persistence of posttraumatic symptoms 18 months after the disaster [45]. The authors' study could have been enriched by some objective measures of individual performance (eg, grades, parental assessment) and class functioning. Parental assessment, which was lacking in this study, seems most pertinent to the evaluation of any class activation program, particularly after disaster. Children's pathology may prove resistant to change because of their parents' suffering, and conversely, parents who function well may prove helpful in facilitating their children's improvement [40]. The same holds true for teachers' suffering and functioning. Finally, the short-term results of the study must be followed up to document more sustained outcomes.

Other limitations that are characteristic of implementing mental health relief programs after disaster include the paucity of experienced personnel in the areas of mental health and education, which imposes a high professional-to-client ratio, a less than optimal physical setting, the distance between academic and professional centers and the disaster area, and the cultural gaps between professionals and consultants and between professionals and victims. Assessment

of such programs is a difficult task in and of itself. Clinicians and victims are preoccupied with the alleviation of suffering, thus experiencing the assessment of programs as pedantic at best [3].

Summary

Mental health interventions are known to prevent the progressive worsening of symptoms in young victims of disaster and, subsequently, to prevent a decline in their academic performance and self-esteem [8,46]. The tremendous needs that emerge after a disaster and the reluctance shown by most victims to seek professional help require mental health leaders to adopt a proactive stance and implement relief programs in the child's most natural setting. **The school as institution and the teachers as empowered mediators offer the appropriate conditions for implementing an effective large-scale intervention program.** Well-intentioned child professionals who deal with school administrators and teachers must take into account that, as stated by Pfefferbaum et al [25], "avoidance is at the core of the posttraumatic response, and it sometimes involves avoidance of treatment." For child mental health professionals, routine collaboration across systemic boundaries may prove critical for the rapid mobilization of resources during mass traumatic emergencies. Further studies are needed to identify the protective and risk factors that predict resilience and pathology, respectively, and factors that facilitate or aggravate factors that predict improvement, resistance, and deterioration in response to treatment.

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