

Teacher-mediated intervention after disaster: a controlled three-year follow-up of children's functioning

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Background: Child survivors of a catastrophic earthquake in Turkey were evaluated three and a half years after the event, and three years after a sub-group participated in a teacher-mediated intervention developed by the authors. The goal of this follow-up study was to determine the long-term effectiveness of the original intervention. **Methods:** Subjects who participated in the intervention were compared with a control group of children similar in terms of demographics, risk and exposure. All children were evaluated in terms of posttraumatic, grief and dissociative symptomatology, as well as adaptive functioning (academic performance, social behavior and general conduct). **Results:** The severity of post-traumatic, grief and dissociative symptoms of the two groups was comparable. Teachers blind to group assignment rated participating children significantly higher than the control group in terms of adaptive functioning. **Conclusions:** Early post-disaster intervention addressing children and their educational milieu provides children with significant symptomatic reduction, allowing the mobilization of adaptive coping, thereby enhancing their overall functioning as observed in school. **Keywords:** Children, trauma, disaster, school intervention, adaptation.

A recent study conducted by the National Center for Post-Traumatic Stress Disorder (PTSD) examined 177 articles covering 80 different disasters (Norris, Byrne, Diaz, & Kaniasty, 2001). The study found that school-age children are significantly more likely than adults to show severe impairment following a disaster (62% and 39%, respectively). This finding demonstrates the rising awareness concerning children's post-disaster vulnerability.

After experiencing a disaster, children have been found to demonstrate negative cognitive effects in areas such as memory, learning and school performance (Gardner, 1971; Pynoos & Nader, 1988), as well as an increased risk for later development of psychopathology (Schwartz & Perry, 1994; Van der Kolk, 1989). One of the most important post-disaster coping tools is a social support system (Vernberg, La Greca, Silverman, & Prinstein, 1996). School-based post-disaster interventions may suit these needs, as they mobilize the various areas of a child's natural social support system.

In this article the authors present a systemic theory of disaster, emphasizing the important role that schools occupy in the post-disaster upheaval. They then summarize a previous study conducted regarding school intervention following a major earthquake in Turkey in 1999. Finally, the data concerning a 3-year follow-up study evaluating this intervention is presented and discussed.

The systemic theory

The systemic theory of disaster posits that a disaster causes complete upheaval within societal structure (Laor, Wolmer, Spirman, & Wiener, 2003). Groups compete for power and resources, formal leadership is seriously challenged, and institutions may fail to integrate their plans and efforts with one another. Even when a system of public health exists, major catastrophes may seriously interfere with its normal operation. Preparation in advance is crucial if any victims of disaster, but especially children, are to be cared for effectively.

Our approach is based on two fundamental facts: (1) there is usually a significant paucity of child professionals trained to deal with disaster relief; and (2) many institutions, such as schools, well-baby clinics, kindergartens, primary care clinics and community centers are involved in care for children (Laor et al., 2003). Therefore, professionals must aim to integrate efforts from the central institutions in society with one another, thereby reactivating each of them. Our ecological view emphasizes the function of clinical mediators working routinely with children who, identified, trained and empowered, enhance their roles in order to take responsibility for children's psychological relief.

Schools as intervention locales

Children who undergo a mass disaster experience far-reaching upheaval touching on many areas of their daily existence. A rapid return to normal routine and functioning should be facilitated, retaining within the intervention as much semblance of the pre-disaster order as is feasible.

Schools are an ideal place to implement post-disaster interventions. On a basic level, children are already in attendance for set times during the day, making compliance rates higher by overcoming the pervasive disinclination among disaster survivors to seek help (Lindy, Grace, & Green, 1981; Schwartz & Kowalski, 1992). Furthermore, many symptoms (e.g., difficulty concentrating, behavioral problems) are likely to emerge specifically in the school setting (Pfefferbaum, 1997; Yule & Williams, 1990). Constant supervision over the course of each day also allows for immediate feedback and consistent follow-up opportunities (Klingman, 1993; Wolmer, Laor, & Yazgan, 2003). In addition, children avoid the undesirable stigma of being singled out for special treatment.

School interventions also facilitate peer interactions and support in the most natural support system outside of the family. A classroom enables mental health workers to reach children at a developmentally appropriate level, in a normal context and with a familiar set of rules and routine, reinforcing the child's perception of his or her own normalcy (Klingman, 1993; Vernberg & Vogel, 1993; Wolmer et al., 2003). Moreover, the support of a child survivor's peers when coping with disaster cannot be underestimated. Talking with other children who underwent similar experiences reassures the child that he or she is not responding inappropriately to the event (Pynoos & Nader, 1988; Vernberg & Vogel, 1993; Vernberg et al., 1996). For example, child survivors of a boat capsizing agreed, upon being asked what part of a group intervention was of greatest help, that they most valued the experience of being able to talk to other child survivors (Yule & Williams, 1990).

The effectiveness of school-interventions

A number of studies have examined the effectiveness of school intervention programs with positive results, although the methodology of both the interventions and the studies varies considerably. For example, participation in school-based interventions in the former Yugoslavia correlated with significant reductions in post-traumatic stress, depression, and grief symptoms (Layne et al., 2001; Saltzman, Layne, Sternberg, Arslangic, & Pynoos, 2003).

Two controlled studies regarding school-based interventions conducted following a major earthquake in Armenia found (a) a significant decrease in PTSD symptoms after brief psychotherapy 11 months after the quake (Goenjian, 1993), and (b)

that the psychotherapy kept the depressive symptoms from worsening (Goenjian et al., 1997). Following an earthquake in Italy, Galante and Foa (1986) found a significant reduction in posttraumatic symptoms after seven monthly sessions with child survivors. Furthermore, following a shipping disaster, those children who received help in school were more likely to later report fewer symptoms (Udwin, Boyle, Yule, Bolton, & O'Ryan, 2000).

Teachers as clinical mediators

School-based interventions are often conducted by mental health professionals. However, teachers may become efficient clinical mediators, helping to cope with the dearth of child professionals who are trained in disaster relief. Teachers occupy central roles within the lives of children, are viewed as trustworthy by children and parents, and most are amenable to being trained for a more therapeutic role (Wolmer et al., 2003). For younger students, teachers also provide a sense of physical security, and can offer factual information about disasters and their consequences (Vernberg & Vogel, 1993; Vernberg et al., 1996). However, it is crucial to make psychological support available to the teachers as well (Pynoos & Nader, 1988), as they often have experienced the same disaster as the children, and may be traumatized themselves (Wolmer et al., 2003).

Summary of previous study and findings

On August 17, 1999, the East Marmara region of Turkey was hit by a major earthquake, leaving approximately 18,000 people dead and 150,000 homes destroyed (Wolmer et al., 2003). Four to five months after the earthquake, the authors facilitated a classroom-based School Reactivation Program in a prefabricated village consisting of 320 families, located next to Adapazari – a city severely damaged by the quake. The authors trained, supervised, and supported both the leadership of the school and the teachers, who then conducted the intervention. The intervention consisted of eight 2-hour meetings led by teachers over the course of four weeks, combining psychoeducational modules and cognitive-behavioral techniques.

Assessment of the children was performed before, and again six weeks after, the intervention and included information concerning exposure and risk, and symptoms of trauma, grief and dissociation (see Wolmer et al., 2003 for a detailed description of the intervention and the results). Regardless of reports as to injury, loss and exposure to death or severe injury, the mean severity of posttraumatic and dissociative symptoms following the intervention decreased significantly, and the proportion of children expected to receive a PTSD diagnosis dropped from 32% to 17%, similar to a control group not directly exposed to the earthquake. Grief symptoms showed

a significant increase in all groups and declined weeks later, possibly because the intervention facilitated the initiation of a normal grieving process.

The value of longitudinal studies

Post-disaster longitudinal studies following children are rare, as implementation is exceptionally difficult. For example, it is problematic to locate displaced populations that are no longer contained within a given area or easily identified by post-disaster services. Furthermore, clinicians and researchers generally have a limited commitment to a given project. Despite these difficulties, longitudinal studies provide key information regarding the lasting effects of a disaster and of the interventions implemented.

Most longitudinal studies demonstrate negative traumatic sequelae on children many years post-disaster (Dyregrov, Gjestad, & Raundalen, 2002; Green et al., 1994; McFarlane, 1987; Sack, Him, & Dickason, 1999). Some studies found that no symptoms remained in child victims 2 and 3 years after a traumatic event (Becker, Weine, Vojvoda, & McGlashan, 1999; Winje & Ulvik, 1998).

Environmental (e.g., degree of exposure, mother's responses) and personal factors (e.g., past trauma, previous functioning) may influence the child's long-term response (McFarlane, 1987, Nader, Pynoos, Fairbanks, & Frederick, 1990; Schwarzwald, Weisberg, Solomon, & Waysman, 1994). In a study of children affected by the SCUD attacks on Israel during the Gulf War, more severe symptoms were associated with physical displacement, living in a family with inadequate cohesion, and having a mother with poor psychological functioning (Laor et al., 1997; Laor, Wolmer, & Cohen, 2001). The field is still lacking controlled studies integrating a longitudinal approach, the measurement of both adaptive functioning and clinical symptoms based on direct assessment as well as on collateral information.

The current study is a three-year follow-up of a group of children who participated in the previously described school-based intervention in Turkey. In this study we utilized multiple informants (the child, the mother and the teacher) to assess the outcomes measures (psychological well-being and daily functioning) in these children and compare them to a control group with similar exposure and demographics who did not participate in the intervention. We hypothesized that children who participated in the intervention will be characterized by fewer symptoms and more adaptive functioning than the control group.

Methods

Participants

The study sample consisted of 287 children aged 9–17 (mean age \pm sd = 11.5 \pm 1.33), who studied in three

schools located in the disaster area, 67 of whom (60.6% girls, 39.4% boys) participated in the School Reactivation Program in the Israeli Village in January 2000 (33% of the original sample, Wolmer et al., 2003), and 220 children (51.4% girls, 48.6% boys) who did not participate in the school program. The other members of the original sample were dispersed in many other schools either in or outside the city and the area and, therefore, could not be located.

Both groups were comparable in terms of age and gender (both $p > .05$). Furthermore, according to the Risk Index computed as the sum of individual risk factors (e.g., exposure to the earthquake, number of losses, injury, past traumatic events; Wolmer et al., 2003), both groups were characterized by a similar level of risk following the 1999 earthquake [mean \pm sd = 1.13 \pm 1.16 and .89 \pm 1.12 accordingly for participating and non-participating children; $t(284) = 1.52$, $p > .05$]. For example, participating and control children were comparable in terms of having been under the rubble (10.6 and 7.1%, respectively); suffering personal injury as a result of the earthquake (6.5 and 5.6%); being at home during the earthquake (83.3 and 79.9%); and seeing severely injured people (37.9 and 43.8%). Moreover, both groups were comparable regarding the proportion of children who received some kind of psychological treatment after the earthquake (15.9% and 9.7%) (all chi-square tests $p > .05$).

Posttraumatic, grief and dissociation symptoms after the intervention of the 148 participants in the school program who were not included in the present study because they were not currently studying in the three schools involved in the project were similar to those of the 67 children who were followed up [Multivariate $F(3, 194) = .58$, $p < .05$].

Instruments

Children completed the following instruments with the assistance of the teachers: (1) The Child Post-Traumatic Stress Disorder Reaction Index (CPTSD-RI; Pynoos et al., 1987) asks for the reactions of children to stressful events and classifies five degrees of PTSD severity: doubtful, mild, moderate, severe and very severe. (2) The Traumatic Dissociation and Grief Scale (TDGS; Laor et al., 2002; Wolmer et al., 2003) consists of 23 self-report items that form one main dissociation factor composed of two sub-factors (Perceptual Distortions and Body/Self distortions) and one main grief factor composed of two sub-factors (Irritability and Guilt/Anhedonia).

Mothers filled out a socio-demographic questionnaire that asked for information concerning the child and the family, the child's functioning before the earthquake in terms of problems with school, behavior, friends and at home (Cronbach $\alpha = .74$), stressful/traumatic episodes before and after the earthquake (e.g., car accidents, loss of close people, birth of siblings, hospitalization, divorce), and exposure to the earthquake (e.g., personal injuries, being under the rubble, seeing dead and severely injured people, loss of family members or friends). Furthermore, a sub-group of mothers of children participating in the study ($n = 38$) and in the control ($n = 145$) groups were asked to complete the grief scale of the TDGS (which includes the greatest

proportion of items discernible by an external observer) in order to obtain collateral information about the child and examine the validity of the children's report.

In addition, teachers (blind to the children's participation in the intervention program) were asked to assess each of the children on three domains of daily functioning: academic performance, social behavior and general conduct, using a five-point scale (1 = very bad, 5 = very good). These three domains showed an acceptable level of internal consistency (Cronbach $\alpha = .86$) and, therefore, were also combined into a general measure of daily functioning.

Procedure

Three and a half years after the 1999 earthquake, the authors approached three schools located in the disaster area: one in the Israeli Village, where the original intervention took place, and two in the nearby city of Adapazari. Because during the last three years families moved to and from the Israeli Village, each of the three schools included both children who had participated in the January 2000 School Reactivation Program and children who had not participated. Chi-square analysis showed that a similar proportion of children in the study and the control group were registered in each of the three schools (43.1–42.9% in the Israeli Village; 32.3–26.7% in Adapazari School1; and 24.6–30.4% in Adapazari School2; $\chi^2 = 1.13$, $df = 2$, $p > .05$).

Upon approval by the educational system and the parents, teachers were approached and trained as to how to fill the symptom scales and the child's assessment of daily functioning. Then children and mothers were interviewed individually and classified as 'Participated in the 2000 School Reactivation Program' (study group) or 'Did not participate' (control group), based on the records of the Israeli Village School.

Results

Symptomatic changes after three years

In order to assess the symptomatic change that took place in those children who participated in the School Reactivation Program (for whom we had previous assessments), we used Multivariate Analysis of Variance with Repeated Measures to compare the post-intervention assessment (January 2000) and the current assessment (3 years later). We observed multivariate and univariate significant decrease in the three symptom domains: posttrauma [means \pm sd = 30.20 \pm 15.33 and 24.24 \pm 14.37; $F(1, 62) = 6.60$, $p < .02$], grief [means \pm sd = 22.52 \pm 2.50 and 9.82 \pm 7.89; $F(1, 55) = 130.45$, $p < .001$], and dissociation [means \pm sd = 12.56 \pm 2.16 and 3.94 \pm 5.64; $F(1, 49) = 113.79$, $p < .001$]. We observed no significant interactions involving symptom decrease and age, gender, and the Risk Index during and after the earthquake ($p > .05$ for all interactions).

Moreover, the category of posttraumatic severity remained stable for 30% of the children, decreased to a less severe category for 41% of the children, and

increased to a more severe category for 29% of the children (Table 1). About 18% of the children still reported severe posttraumatic symptoms.

Participating vs. non-participating children:

1. Symptoms

According to Multivariate Analysis of Variance (ANOVA), there were no significant differences in the symptoms of posttrauma, grief and dissociation reported three years later by children who participated in the school program and the control group of similarly exposed children [Multivariate $F(3, 252) = .36$, $p > .05$] (Table 2). A similar pattern appeared when we analyzed the four sub-factors of the TDGS [Multivariate $F(4, 264) = 1.17$, $p > .05$]. Further, there were no significant Group \times Age and Group \times Gender interactions (both $p > .05$). The comparison of grief symptoms in the children in the study and the control group, as reported by the mothers, yielded a non-significant effect as well [$t(181) = .56$, $p > .05$] (Table 2) and was significantly correlated with the children's report on the TDGS ($r = .54$, $p < .001$). When the study and the control groups were collapsed, girls were found to report more posttraumatic symptoms than boys [mean \pm sd = 27.6 \pm 14.71 and 23.55 \pm 11.81, respectively; $F(1, 252) = 6.72$, $p < .02$].

The distribution of children in the study and the control groups as classified according to the post-traumatic severity category was not significantly different ($\chi^2 = 3.28$, $df = 3$, $p > .05$) and yielded the following values for the study and the control groups respectively: doubtful, 22.7 and 13.7%; mild, 28.8 and 34.0%; moderate, 30.3 and 35.0%; and severe, 18.2 and 17.3%.

Participating vs. non-participating children: 2. Daily functioning

According to multivariate ANOVA, children who participated in the School Reactivation Program were characterized by their teachers as being higher functioning three years later, compared to non-participating children [Multivariate $F(3, 276) = 3.49$, $p < .02$]. As shown in Table 2, teachers provided a more positive evaluation to participating children in terms of academic performance [$F(1, 278) = 9.51$,

Table 1 Posttraumatic stress severity category of children exposed to the 1999 earthquake after the School Reactivation Program and 3 years later

| | Three years after the school intervention | | | |
|-------------------------------|---|------|----------|--------|
| | Doubtful | Mild | Moderate | Severe |
| After the school intervention | | | | |
| Doubtful | 4 | 3 | 0 | 1 |
| Mild | 2 | 5 | 6 | 2 |
| Moderate | 6 | 6 | 7 | 6 |
| Severe | 3 | 4 | 5 | 3 |

Table 2 Symptom domains and daily functioning of children who participated in the School Reactivation Program and a control group three years after the earthquake

| | Participating children (<i>n</i> = 67) | | Control group (<i>n</i> = 220) | |
|--------------------------------------|---|-------|---------------------------------|-------|
| | Mean | SD | Mean | SD |
| Symptoms | | | | |
| Posttrauma (CPTSD-RI) ¹ | 24.44 | 14.16 | 26.56 | 13.46 |
| Grief (TDGS) ² | 9.53 | 7.72 | 10.37 | 7.09 |
| Dissociation (TDGS) | 4.05 | 5.60 | 4.70 | 5.79 |
| Grief (mothers' report) ³ | 9.45 | 7.35 | 8.73 | 6.93 |
| Daily functioning | | | | |
| Academic performance | 3.77 | 1.05 | 3.26 | 1.21 |
| Social behavior | 4.14 | .86 | 3.84 | 1.00 |
| General conduct | 4.30 | .84 | 3.92 | 1.05 |

Notes: ¹CPTSD-RI = Child Post Traumatic Stress Disorder Reaction Index ²TDGS = Traumatic Dissociation and Grief Scale. ³The *n*'s for this variable are 38 (study) and 145 (control).

$p < .003$], social behavior [$F(1, 278) = 4.70, p < .05$], and general conduct [$F(1, 278) = 7.40, p < .008$]. The Group \times Gender interaction regarding the children's daily functioning was not statistically significant ($p > .05$).

Finally, we computed a stepwise regression analysis in order to statistically predict the children's daily functioning (composite score of academic, social and behavioral performance) as reported by the teachers three years after the earthquake, using the following predictors: group (study vs. control), functioning before the earthquake (summary of four domains: at home, with friends, in school and general behavior; Cronbach $\alpha = .74$), the Risk Index and the symptoms scales. Three variables entered the regression equation [$R = .37; F(3, 191) = 10.11, p < .001$]: the child's general functioning before the earthquake (beta = $-.264$), group (beta = $-.163$) and posttraumatic symptoms (beta = $-.134$). Therefore, having had higher levels of functioning before the earthquake, participating in the School Reactivation Program and having fewer posttraumatic symptoms three years later were associated with better daily functioning three and a half years after the earthquake.

Discussion

This study followed up two groups of school-age children three and a half years after they were exposed to the August 1999 earthquake in Turkey. One group of children participated in a brief School Reactivation Program led by the teachers in January 2000, and the second, a control group with similar exposure and risk, did not receive the intervention. The study endorses an integrative methodological perspective combining a longitudinal approach, the inclusion of a control group, the utilization of multiple informants and the focus on adaptive daily functioning as well as on clinical symptoms.

Following is a discussion of our main findings. First, we found a significant symptomatic decrease in children exposed to a major disaster over the course of three years in the three domains assessed: posttrauma, grief and dissociation. This finding replicates those of others showing that over the course of several years there is a significant reduction in symptoms reported by traumatized victims (Becker et al., 1999; Schwarzwald et al., 1994; Winje & Ulvik, 1998). Interestingly, however, we found that a large proportion of children in the two groups of the study still report moderate (30–35%) or severe (17–18%) posttraumatic symptoms. It is noteworthy that the latter percentage is similar to that reported by Sack et al. (1999) in child survivors of the Pol Pot regime in Cambodia five years later.

Furthermore, our data show that some of the children in the 'severe' category may represent cases in which symptoms appeared within six months after the traumatic event but crystallized into the full-blown syndrome months or years later. Of the children who moved to the severe category, 3 of them had 4 risk factors, 1 had 3 risk factors, 3 had 2 risk factors and 1 had no risk factors. The latter, however, had moderate symptoms after the intervention. These findings emphasize the need to follow up children exposed to severe trauma, particularly children with moderate symptoms (mostly considered sub-clinical PTSD according to the CPTSD-RI) who are at significant risk in terms of exposure and past traumatic events. This follow-up, supervised by mental health professionals, could be performed by school counselors/psychologists in collaboration with the teachers at 3, 6 and 12 months after the event.

Second, the level of posttraumatic, grief and dissociative symptoms reported by children who participated in the School Reactivation Program three years earlier and by those in the control group was similar. Based on this finding, one may suggest that, in the long run, the clinical course of the post-disaster symptoms is unaffected by an intervention such as the one provided by our program. In most children symptoms will abate, whereas some survivors will find it difficult to process the event and recover a state of well-being. Future research may need to further focus on the characteristics of these children, examining, for example, whether they show some combination of pre-disaster vulnerability, post-disaster stress, dysfunctional family life, and inappropriate support.

Third, our study found significant group differences in the assessment provided by teachers regarding the children's daily functioning. The teachers' assessment was intended to be an objective measure of positive adaptation and functioning and covered three areas: academic performance, social behavior and general conduct. It is important to emphasize that the teachers were unaware of the children's participation in the School Reactivation Program. Despite the lack of symptomatic differ-

ences found between the two groups, the rating of the functioning of those children who participated in the brief class intervention was superior to that of children in the control group in the three domains assessed: they demonstrated superior academic performance, better social behavior, and improved general conduct.

The correlations between the children's symptomatic level and daily functioning were mostly small and non-significant, supporting previous findings showing that children may display appropriate adaptive functioning in the face of internal strife (Laor et al., 1997). Therefore, we propose that long-term follow-up of traumatized children include the assessment of both domains.

Taken together, our findings suggest that the intervention performed six months after the disaster may have allowed for two types of development: the achievement of a significant symptomatic decrease in a relatively brief period of time (6 weeks) as reported in our previous contribution (Wolmer et al., 2003), and the revitalization of the educational staff, and the school as a whole, as fundamental constituents of the community. Together, these may have served as catalysts for the natural process of psycho-social rehabilitation.

It should be emphasized that a central component of the School Reactivation Program was the empowerment of teachers as clinical mediators (Laor et al., 2003; Wolmer et al., 2003) and the enhancement of their role as 'educator', rather than merely 'teacher'. Within such a role, we enabled the teachers to facilitate the development and implementation of critical daily behaviors in areas such as caring and individualized consideration, transmission of positive expectations, cognitive stimulation and the exposure of children to appropriate challenges. All of these concrete behaviors and attitudes were integrated into a common vision of growth and development, produced through active coping, mutual support and belief in existing resources. This complemented the classroom sessions in which teachers sensitively led the children through the most painful topics (e.g., mourning losses, anger, guilt, posttraumatic dreams).

Our results suggest that the school-based teacher-mediated intervention facilitated a process by which the symptomatic improvements that are expected to occur at some point during the course of the following years will appear earlier, provided no other traumatic events occur in the meantime. As a result of the symptomatic reduction and the classroom revitalization, children may have been able to develop more adaptive coping to support phase-specific development pertinent to psychosocial and educational achievements. This developmental process has formed what we may identify as the *area of symptom-free coping* (Figure 1).

Expanding this area seems of particular importance in allowing traumatized children to unfreeze and

release the greatest amount of cognitive and affective resources, thereby promoting positive adaptation. Because the psychological symptoms that block or relocate these resources are at their peak during the months immediately after the event, our results suggest that early interventions – even brief ones implemented sensitively by empowered teachers – are recommended. Such an endeavor requires proactive steps: (1) the establishment of appropriate infrastructure, programs, and inter-systemic collaborations (medicine, mental health, education, welfare); (2) the development of culturally adapted intervention protocols, empirically tested and ready to be taught; and (3) the identification of mediators willing to be trained and empowered. In times when natural and man-made disasters pose a constant threat of vast destruction affecting large number of human victims, such a preventive approach seems the only responsible policy (Laor et al., 2003).

Limitations

The main limitation of the study was the inability to locate a greater proportion of the children from the original sample. Although the identification of 33% of the original sample (67 out of 202) more than three years after a disaster that resulted in massive relocation may be considered reasonable, a larger sample would have allowed more hypotheses to be tested. To note, we lack clinical information in regard to the children in the control group at the time of the intervention. However, we demonstrated the homogeneity of the two groups in terms of socio-economic status, risk and traumatic exposure. Although almost impossible in times of disaster, randomization would have strengthened significantly the design.

A second limitation is the use of a rather simple scale for assessing the teachers' evaluation of the children's functioning. Issues of time consumption that may have jeopardized the teachers' willingness to collaborate required minimizing the burden on them. Nevertheless, the brief scale proved internally consistent and behaved in the expected direction regarding the children's symptoms. Future research

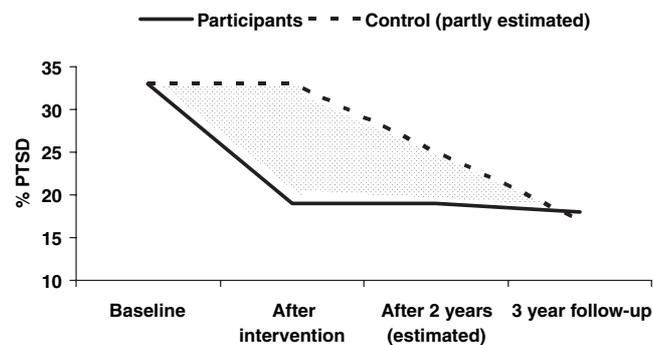


Figure 1 Posttraumatic stress disorder rates (% partly estimated) of children who participated in the School Reactivation Program and of a control group

may benefit from obtaining parental report in regard to children's adaptive functioning, family support and coping style.

Conclusion

This study sheds light on the appropriate nature and timing of post-disaster large-scale community interventions with children, and recommends ways to carry them out effectively. Our longitudinal data suggest that post-disaster interventions are necessary in order to facilitate children's normal development and successful adaptive functioning; and that interventions need to be offered at an early stage in order to maximize the time that children may enjoy coping without symptoms.

Furthermore, properly trained and supervised teachers, working within the classroom, are able to take responsibility for the implementation of clinically informed intervention protocols. This model of intervention has important implications in terms of the role definitions of teachers and mental health professionals. Under post-disaster conditions, both groups of professionals need to depart from their traditional roles in order to significantly augment the number of children who can be helped as well as to rehabilitate child care community institutions. Mental health professionals must train, supervise and guide teachers, who subsequently serve as the mediators who actually implement the post-disaster interventions. For clinical mediation to be successful in the area of school-based intervention, mental health knowledge, theoretical and practical, ought to be transformed into experience-near didactics. To this effect, a truly collaborative partnership must be established between all parties involved.

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