

The Journal of Nervous and Mental Disease

Issue: Volume 188(7), July 2000, pp 409-415

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Publication Type: [Articles]

ISSN: 0022-3018

Accession: 00005053-200007000-00003

[Articles]

The Mother-Child Dyad Facing Trauma: A Developmental OutlookWOLMER, LEO M.A.¹; LAOR, NATHANIEL M.D., Ph.D.^{1,2}; GERSHON, AVNER M.A.¹; MAYES, LINDA C. M.D.²; COHEN, DONALD J. M.D.²**Author Information**¹ Tel-Aviv Community Mental Health Center and Sackler Faculty of Medicine, Tel-Aviv University, Israel. Send reprint requests to Mr. Wolmer, Tel-Aviv Community Mental Health Center, 9 Hatzvi St., Tel-Aviv, 67197, Israel.² Yale Child Study Center, New Haven, Connecticut.

This study was supported by a grant from The Foundation for Children at Risk, Israel.

Abstract

The effects of trauma in children are amply documented. This paper investigated the relationship between children's age and posttraumatic clusters of symptoms 30 months after the end of the Gulf War and the mother's reaction to the trauma 6 and 30 months after the war. Fifty-one children aged 6 to 8 years (3 to 5 years during the war) and their mothers were interviewed. Results showed no age differences in the various posttraumatic symptoms of the children. Correlations between the children's posttraumatic symptoms and both the general and the specific posttraumatic symptoms of their mothers were positive and significant in the 6-year-olds, positive and nonsignificant in the 7-year-olds, and nonsignificant and mostly negative in the 8-year-olds. These findings may reflect the developmental changes that render the older child more autonomous and the younger child rigidly attached to the mother after a traumatic event.

Theoretical and empirical studies conducted over the last two decades have elucidated the intricate nature of stress reactions in children to human-made or natural trauma (Terr, 1983, 1985). Much of the research has addressed the relevant risk and protective factors, including demographic attributes (e.g., gender, age, socioeconomic status; Rutter, 1990), personality variables (e.g., attachment, temperament, coping style, locus of control and empathy; Fonagy et al., 1994; Rutter, 1990), cognitive factors (e.g., IQ and problem-solving ability; Masten et al., 1990b), and environmental characteristics (e.g., competent parenting, social support and social involvement; Masten et al., 1990a; Rutter, 1990; see also Cohler et al., 1993; Luthar and Zigler, 1991; Rolf et al., 1990). Recently, to refine the identification of children at risk, some authors have introduced the use of quantitative measures (Pynoos and Nader, 1988). In this manner, Vernberg et al. (1996), in their study of the emergence of posttraumatic symptoms in school-age children after Hurricane Andrew, identified four main predictors of the stress reaction: exposure to traumatic experiences (life-threatening events and loss-disruption events), child's characteristics (gender, ethnicity, and age), social support (from parents, classmates, teachers, and close friends), and child's coping ability. Similar mediators were found for human-made disasters such as war (Jensen and Shaw, 1993). However, because risk factors may change with developmental stage and with type of stressor, the interpretation and generalization of findings must be done with caution.

One of the most important and well-documented variables that statistically predicts children's reaction to trauma is parental response (Bingham and Harmon, 1996; Bloch et al., 1956; Earls et al., 1988; Green et al., 1991; Jensen and Shaw, 1993; Sack et al., 1995; Sullivan et al., 1991). For example, McFarlane (1987) found that the mothers' symptoms were the best predictor of PTSD symptoms in children, an observation that could have been influenced by the mothers' rating of their children. However, researchers have rarely focused on the parent-child reaction to the traumatic event as it appears in different age groups. Such a developmental perspective was endorsed by Green et al. (1991), who investigated the reaction of children aged 2 to 15 years and their parents to the collapse of the Buffalo Creek Dam. The authors concluded that the influence of the parental response in the 2- to 7-year-old group was greater than that in the middle latency age group (8 to 11 years) and similar to that in the early adolescent group (ages 12 to 15 years). It remains unclear whether the child's specific posttraumatic symptomatology (intrusion, avoidance, and arousal) is predicted by the parent's specific posttraumatic symptomatology or whether it depends on the parent's general symptomatic reaction (e.g., anxiety, aggression, depression). Also, it could be argued that, developmentally, the 2- to 7-year-old group is too heterogeneous to be treated as a unit.

Terr (1985) observed that the emotional reaction of young children to psychic trauma may overwhelm crucial coping and defensive operations, temporarily rendering them helpless. On the background of developmentally related data concerning the dependence of children's reaction to stress on their parents', it is noteworthy that the research on posttraumatic preschool children is scant (Green et al., 1991; Sullivan et al., 1991). This is unfortunate since it is particularly in this stage that children lean on their parents when they need to recover from traumatic experiences (Fonagy and Target, 1996; Target and Fonagy, 1996).

Our study was guided by Pynoos's (1996) concept of the transgenerational effects of trauma. Pynoos suggested that protective or risk factors, such as the child's estimation of danger, capacity to regulate extreme negative emotions, and efficacy of protective action, progress developmentally from childhood through adolescence. This maturational process mediates the degree of the child's reliance on self, parents, caretakers, siblings, or peers (Pynoos, 1996). In relation to the developmental conflict that characterizes the preschool period, i.e., the oedipal conflict, Pynoos proposed that it is compounded by the child's gradual conscious inclusion of a schema of safety and security for their parents in their own needs for parental protection against external dangers. Therefore, the preschool child's experience of effective or ineffective protection by the parent has inherent intrapsychic repercussions for later developmental stages. We need to know more about how a psychological trauma shared by caregiver and child during the early formative stage impacts on the child's development in various domains (physiological, cognitive, and emotional; Armsworth and Holaday, 1993; Bingham and Harmon, 1996; Pynoos, 1996). More specifically, how does the parent's coping with the trauma affect the child's coping?

The present study investigates a group of Israeli preschool children and their mothers who were displaced from their homes during the Gulf War after they had been exposed to the direct impact of Scud missiles (Laor et al., 1996). We have recently compared the findings in these children and their mothers at 30 months after the traumatic experience with those in a matched group of children and mothers from the same neighborhood who were not displaced from their homes (Laor et al., 1997). We noted that the displaced children reported more posttraumatic symptoms than the controls, but their general symptomatology was comparable. However, the relationship between the children's posttraumatic symptoms and the mothers' general and (specific) posttraumatic symptomatology was different in the two groups. In the displaced group, the posttraumatic symptoms of the 5-year-old children did not correlate with their mothers' symptoms, whereas those of the 4-year-old children significantly correlated with the mothers' general and intrusive symptoms, and those of the 3-year-old children strongly correlated with the mothers' general, intrusive, and avoidant symptoms. Within the non-displaced group, there was no significant correlation between children's and mothers' symptoms in any of the age subgroups.

It is important to note that the posttraumatic syndrome consists of two main clusters of symptoms: one carries the representation of the trauma (intrusive symptoms), and the other betrays the pathological, but sometimes useful, attempt to cope with it (avoidance and numbing symptoms). There is yet another cluster consisting of the stressful physiological and behavioral counterparts (arousal symptoms). The question of specific influence of the mother's reaction on these clusters of posttraumatic response in their children at different ages was not tackled in our previous paper (Laor et al., 1997). The present study focuses on the displaced group, taking a closer look at the posttraumatic symptom clusters of the children, 30 months after the event. Our questions were as follows: a) Do the levels of posttraumatic symptoms differ in children exposed to trauma at different ages of the preschool period (3, 4, or 5 years)? b) Do the correlations between the posttraumatic symptoms of the children and the symptoms of their mothers differ at different ages of exposure during the preschool period?

Methods

The Traumatic Event

On the night of January 17, 1991, the Israeli civilian population was attacked by Scud missiles for the first time during the Gulf War. Several additional attacks were launched in the following weeks. Hundreds of families whose homes were damaged by the missiles were temporarily relocated in nearby hotels, also within the most threatened zone. The stress on the civilian population had been mounting already for 3 months before the outbreak of the war. Citizens were warned of the possibility of an attack on Israel with chemical weapons, and in October 1990, gas masks were distributed to every citizen and sealed rooms were prepared in every house. These rooms were later entered each time a missile alert was sounded. Thus, this entire 4-month period may be viewed as a continuous stressor related to expected yet uncontrollable events. Although a mental-health field-station was established in the hit area, only a few families applied for counseling.

Subjects

The study population consists of children and their mothers residing in a disadvantaged neighborhood in Tel Aviv (Israeli bottom quartile) whose homes had been damaged by Scud missiles during the Gulf War. As a result, all had been displaced to hotels located in the Tel-Aviv area. Of the 75 families that constituted our original cohort (see Laor et al., 1996), 13 could not be located and 11 refused to participate in our 30-month follow-up (Laor et al., 1997). The remaining 51 children included 19 (4 boys and 15 girls) who were 3 years old at the time of the attack, 16 (7 boys and 9 girls) who were 4 years old, and 16 (7 boys and 9 girls) who were 5 years old. Comparisons of the variables assessed in the initial study between those who did and did not participate in the 30-month follow-up showed no significant differences (all $p > .05$).

Procedures and Measures

Mothers and children were interviewed in their homes during a 2-hour session with the following scales (all in the Hebrew version): The Child Post-Traumatic Stress Reaction Index (CPTSD-RI; Pynoos et al., 1987), a widely used 20-item semistructured interview administered to school-age children and adolescents, assessed the specific posttraumatic reactions of the children. The children were asked to rate the frequency of their posttraumatic stress reactions on a five-point Likert scale ranging from "none" (0) to "most of the time" (4). The items were grouped according to the three symptom clusters defined in the DSM-III-R (American Psychiatric Association, 1987): intrusion, avoidance/numbing, and arousal. Previous findings with this instrument have reported acceptable reliability and validity data (Frederick, 1985; Nader et al., 1990; Pynoos et al., 1987; Shannon et al., 1994). With the present sample, analyses revealed that internal consistency was higher for the whole scale (Cronbach's alpha = .81) than for the symptom clusters (alpha = .79, .52 and .50 for intrusion, avoidance/numbing, and arousal, respectively). These results are comparable to those reported by Shannon et al. (1994).

The symptomatic reaction of the mothers (general and specific posttraumatic) was evaluated with: the SCL-90-R (Derogatis, 1983), which measures nine symptom-domains (somatization, compulsivity, paranoid ideation, depression, anxiety, aggression, phobia, interpersonal sensitivity, and psychoticism) and general symptomatology (Global Severity Index, GSI); and the PTSD Inventory (Solomon et al., 1993), which covers the DSM-III-R diagnostic criteria (intrusion, avoidance and arousal) and has been shown to have a high convergent validity with the Structural Clinical Interview for DSM-III-R (SCID) and the Impact of Events Scale (Horowitz et al., 1976).

Statistical Analyses

Symptomatic differences in children and parents by children's age and gender were calculated with multivariate analyses of variance (MANOVAs). The linear relationship between symptoms of children and mothers was calculated with Pearson correlations and multiple regression analyses. Since several correlations were computed, significance level was set at .002 (Bonferroni correction).

Results

Age and Posttraumatic Symptoms

To determine whether children exposed to the traumatic event at a different stage of the preschool period (age 3, 4, or 5 years) presented different symptomatic levels 30 months later, we compared the three symptom clusters of the CPTSD-RI of the three age-groups by MANOVA. No significant differences were noted ($F[6,94] = .72, p > .05$; Table 1). According to Pynoos et al.'s (1993) classification, the posttraumatic symptomatology in the children's sample distributed as follows: 10 children (20%) with doubtful, 18 (35%) with mild, 19 (37%) with moderate, and 4 (8%) with severe symptomatology. Gender was not considered in the analysis because no symptomatic differences were found between boys and girls ($F[3,47] = .23, p > .05$). There were also no significant differences in the symptomatic responses of the mothers of the three age groups: SCL-90-R scales ($F[18, 82] = .56, p > .05$), as well as intrusive, avoidant and arousal symptoms from the PTSD-Inventory ($F[6,134] = 1.67, p > .05$; see Table 1 for means regarding the total scales).

	Child's PTSD-RI*						Mother's symptoms			
	Intrusion		Avoidance		Arousal		PTSD-I ^b		GSI ^c	
	Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Age 6 (N = 19)	1.34	0.64	1.13	0.62	1.01	0.67	35.89	13.97	172.6	72.5
Age 7 (N = 16)	1.48	1.24	0.96	1.00	1.23	0.81	34.88	12.70	153.3	51.7
Age 8 (N = 16)	1.41	0.67	1.11	0.62	0.91	0.55	34.75	12.26	152.7	55.2

*PTSD Reaction Index.
^bPTSD Inventory.
^cSCL-90 R Global Severity Index.

TABLE 1 Child's and Mother's General and Posttraumatic Symptoms According to the Child's Age

Symptomatic Reaction of Children and Their Mothers

We explored the correlations between the three clusters of posttraumatic symptoms of the children exposed at different ages and the symptomatic response of their mothers at 6 and 30 months after the end of the war. As shown in Table 2, there were positive and highly significant correlations between the posttraumatic symptoms of the 6-year-olds (age 3 at the time of trauma) and both the general and specific posttraumatic symptoms of their mothers, whereas the correlations within the 7-year-old group (age 4 at the time of trauma) were positive but mostly nonsignificant. The oldest age group (8-year-olds, age 5 at the time of trauma) showed a pattern of negative and nonsignificant correlations. (The same pattern of correlations appeared when we examined the three symptom clusters of the PTSD-I.) We then used Fisher Z-tests to compare independent correlations between the mother's general symptomatic reaction (SCL-90-R GSI) and the child's posttraumatic response (total CPTSD-RI) for the three age-groups. The correlations found in the 6- and 7-year-old groups ($r = .74$ and $r = .67$, respectively) were not statistically different ($u = 1.08$, $p > .05$), but both were significantly higher than that in the 8-year-old group ($r = -.22$; $u = 3.26$, $p < .005$ and $u = 2.65$, $p < .01$, respectively).

Mothers' Symptoms	Children's PTSD-RI*								
	Intrusion			Avoidance			Arousal		
	Age 6	Age 7	Age 8	Age 6	Age 7	Age 8	Age 6	Age 7	Age 8
Total PTSD-I† (at 30 mos)	.58	.19	-.21	.73*	.40	-.28	.56	.38	-.09
SCL-90-R GSF (at 30 mos)	.62*	.37	-.15	.66*	.60	-.37	.49	.72*	-.14
SCL-90-R GSI (at 6 mos)	.56	.04	-.17	.81*	.33	-.39	.63*	.21	.04

*Child PTSD Reaction Index.
†PTSD Inventory.
‡SCL-90-R Global Severity Index.
* $p < .002$.

TABLE 2 Pearson Correlations between Posttraumatic Symptoms of Children and the Mothers' General and Posttraumatic Response by Age Group

Further, we performed regression analyses with the combined sample, using the child's age as well as the mother's total PTSD-I and GSI scores as independent variables, and the child's PTSD-RI scores (total score and the three symptom clusters) as the dependent variables. These analyses showed that, after the GSI score entered the regression equation (all $p < .05$), neither the child's age nor the mother's posttraumatic symptoms explained any of the remaining variance of the child's posttraumatic symptoms.

Discussion

To the best of our knowledge, the present study is the first attempt a) to explore whether, 30 months after a traumatic event, mothers' specific posttraumatic symptoms or their general pathological response statistically explain the various clusters of posttraumatic symptoms in their preschool children, and b) to investigate the long-term effect of trauma on the relation between mothers' and children's symptoms in specific preschool age groups.

The main findings of the present study are as follows. Among preschool children exposed to a traumatic event, the various specific posttraumatic symptoms of boys and girls as well as between the different age groups are of similar magnitude 30 months after the end of the war. These posttraumatic symptom clusters correlated mainly with the mothers' general pathological reaction rather than with their specific posttraumatic symptoms. However, the correlations were different for the various age groups. Specifically, in children 6 years of age (exposed to the traumatic event at the age of 3), the posttraumatic symptoms were not exclusively related to the mother's specific symptoms, but rather to her general symptoms (e.g., depression, somatization, paranoia, anxiety, aggression, phobia). This was especially marked for children's avoidant symptoms. The correlations found in the 7-year-old group were positive, of a moderate magnitude and nonsignificant. Also in the older group (8 years old, age 5 at exposure), we found nonsignificant correlations between the symptoms of the mothers and the children, but these were mostly negative.

Before exploring the theoretical implications of our findings, some methodological limitations of the present study should be noted. First, the sample size of our age subgroups was small. Although a larger sample would be more appropriate to test developmental differences, the results of this study are clear and consistent enough. Considering the special nature and conditions under which this research was conducted, our potential sample was maximized and is representative of the children with the same age who were exposed to the same traumatic event. Further, correlations performed with the younger group (which differed from the older ones) indicated power values between 64% and 100% (mean = 90%) to detect the reported effect sizes (Borenstein et al., 1997). Second, although previous studies have found that the contribution of fathers' functioning to the prediction of child's symptoms is only marginal after mothers' had been accounted for (Green et al., 1991), this may not be always the case. Still, both parents may contribute to the vulnerability of the child, particularly in preschool children, and, therefore, it may be important to assess the father as well as other central members of the family. Third, the fact that the same interviewer assessed the child and the mother in each family may lead to interviewer bias. Although the interviewers were trained so as to be aware of this bias, independent assessments may reduce methodological artifacts. Fourth, the internal reliabilities of the avoidance/numbing and the arousal subscales were only moderate (see also Shannon et al., 1994). Therefore, results concerning these factors should be considered with caution.

How could we account for the loss of the correlation between symptomatic reactions of children and mothers in the subgroup of older children? One possibility is that this finding reflects the developmental increment in personal autonomy known to occur in children between 3 and 5 years of age. The child's development in autonomy shifts the locus of regulation from the caretaker-child dyad to the child's more mature self (Target and Fonagy, 1996). These data and notions are in line with and our previously presented data. We showed that, even though children in the various age groups do not differ in symptom severity, the older the preschooler, the lower the correlation between the child's stressful reaction to trauma and the family's inadequate cohesion (Laor et al., 1997). Green et al.'s (1991) finding that the parental level of severity influences more preschool children than school-age and adolescent children supports this developmental view.

The caution with which we ought to regard our data concerning avoidant symptoms notwithstanding, correlations obtained for this domain are of particular interest. Avoidance was the posttraumatic domain for which the correlations with mothers' symptoms of the younger and of the older preschool children differed the most. As opposed to intrusion and arousal, the other two clusters of posttraumatic symptoms that reflect the individual's diminished control, avoidance may present as both symptom and distancing behavioral pattern in the service of adaptation by helping the child to remain remote from stressful stimuli.

The pattern observed at 30 months for the children of the different age groups resembles the one that emerged shortly after the traumatic event (6 months; Laor et al., 1997). One may explain the data by postulating that for the younger preschoolers the trauma affected the mother-child dyad and rendered it more rigid, particularly in its mode of coping. This is of importance once we remember that dyadic activity may serve at times as a "traumatic reminder" for the child, "...renewing challenges over previous traumatic helplessness..." (Pynoos, 1996; p. 8). Alternatively, mediating variables such as the symptomatic response and the support offered to the older children by other family members (e.g., fathers or siblings) may play a role in explaining the autonomy of their symptomatic response from their mothers'. Future assessments of our cohort and of other samples should help clarify this issue.

The many studies on the parent-child relationship in posttraumatic symptomatology (e.g., Bingham and Harmon, 1996; Bloch et al., 1956; Earls et al., 1988; Green et al., 1991; Jensen and Shaw, 1993; McFarlane, 1987; Sack et al., 1995; Sullivan et al., 1991) leave an important question open. Is it possible to conclude that, beyond statistical covariance, it is necessarily the mother's response that influences the child's? Or is it the child's symptoms that influence the mothers' or her report on her symptoms? Clinical experience suggests that among very young children, the parent's symptomatic response may fuel the high levels of symptoms in the child. Bingham and Harmon (1996) stated that: "For the young child the parent is the source of protection as well as of nurturing care. When the child and/or the parent experience a threat toward the child, then both are challenged to respond in order to restore a sense of safety for the child" (p. 516). Green et al. (1991) pointed out that for young children, the influence of the parents' reactions may be equal to or greater than the impact of specific aspects of the traumatic event itself. Our longitudinal data support the notions that in younger children a) the mother's symptomatic response is an important influence on the child's, and b) the mother-child dyad is subject to a traumatic impact in younger children.

From a developmental perspective, our view complements the discussion of the question concerning whose trauma is primary, the mother's or the child's. We propose that when examining very young children and their mothers exposed to traumatic events, the location of the trauma might be considered not only in the individual, but also viewed in their relationship with the caretaker, who serves a containing function, critical for the processing of traumatic experiences in young children (Fonagy and Target, 1996; Laor et al., 1996; 1997; Target and Fonagy, 1996). This is of importance both for research as well as for clinical practice. Using larger samples and more sophisticated statistical analyses, future studies examining variables relating to the parent-child dyad, such as attachment styles, may be able to clarify this question.

On the clinical level, considering the high parent-child correlation of symptomatic response, treatment of traumatized younger children is likely to benefit from an integrative approach that includes also dyadic and family intervention as well as parental counseling. A simultaneous approach that focuses on the maladaptive coping strategies developed by children exposed to traumatic events also calls for the integration in therapy of affective and cognitive-behavioral techniques.

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IMAGE GALLERY

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Table 1		Table 2	
Year	Sample Size	Year	Sample Size
1990	100	1991	100
1992	100	1993	100
1994	100	1995	100
1996	100	1997	100
1998	100	1999	100
2000	100	2001	100
2002	100	2003	100
2004	100	2005	100
2006	100	2007	100
2008	100	2009	100
2010	100	2011	100
2012	100	2013	100
2014	100	2015	100
2016	100	2017	100
2018	100	2019	100
2020	100	2021	100
2022	100	2023	100
2024	100	2025	100

Table 1

Table 2

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