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Research report

Caregiver distress, shared traumatic exposure, and child adjustment among area youth following the 2013 Boston Marathon bombing



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ABSTRACT

Background: Disasters are associated with myriad negative outcomes in youth, including posttraumatic stress disorder and related psychopathology. Prior work suggests links between caregiver distress and child mental health outcomes following community traumas, but the extent to which caregiver distress is directly linked to post-disaster child functioning, or whether such associations may simply be due to shared traumatic exposure, remains unclear.

Methods: The current study examined relationships among caregiver distress, caregiver-child shared traumatic exposure, and child outcomes in Boston-area families (N=460) during the six months following the 2013 Boston Marathon bombing. Parents completed surveys about their and their child's potentially traumatic experiences during the bombing and subsequent manhunt. Post-attack caregiver distress and child psychological functioning were also assessed.

Results: After accounting for caregiver-child shared traumatic exposure, significant associations were retained between caregiver distress and child functioning across several domains. Furthermore, after accounting for caregiver traumatic exposure, caregiver distress moderated relationships between child traumatic exposure and child posttraumatic stress and conduct problems, such that associations between child traumatic exposure and child posttraumatic stress and conduct problems were particularly strong among children of highly distressed caregivers.

Limitations: The cross-sectional design did not permit evaluations across time, and population-based methods were not applied.

Conclusions: Findings clarify links between caregiver distress and child psychopathology in the aftermath of disaster and can inform optimal allocation of clinical resources targeting disaster-affected youth and their families.

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1. Introduction

Destructive occurrences that disrupt and overwhelm entire communities, such as natural and manmade disasters, affect tens of millions worldwide each year and are associated with myriad negative outcomes in exposed youth, including posttraumatic stress symptoms, broader internalizing and externalizing psychopathology, and overall reduced functioning (Furr et al., 2010; La Greca et al., 2013; McLaughlin et al., 2010; Hoven et al., 2005). At the same time, outcomes among exposed youth are heterogeneous, and many children exposed to potentially traumatic events show pathways of resilience and endure remarkably well

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(Kilmer and Gil-Rivas, 2010; La Greca et al., 2013; Lai et al., 2014; Masten and Narayan, 2012). Clarifying key factors associated with the heterogeneity of outcomes across exposed youth is critical.

Research suggests that several factors contribute to child and adolescent vulnerability to developing posttraumatic stress symptoms and emotional and behavioral problems in the aftermath of potentially traumatic events. These factors include, but are not limited to, level/dose of trauma, exposure to multiple traumas, preexisting anxiety problems, coping resources, social support, neurobiological processes, genetic factors, and socio-environmental adversity (e.g., poverty, poor access to quality education) (see Cloitre et al., 2009; De Bellis, 2001; Furr et al., 2010; La Greca et al., 2013; Pynoos et al., 1999).

Increasingly, parental distress and/or psychopathology is also understood to play a role in the development of child stress reactions following exposure to potentially traumatic events (e.g., Nugent et al., 2007; Salmon and Bryant, 2002; Stoddard

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et al., 2006). Parents serve critical roles as models of coping and distress for children in the aftermath of disasters and help children process that to which they have been exposed. Moreover, parenting practices and behaviors, which can be largely impacted by parental distress, greatly influence the primary ecology within which child post-event adjustment unfolds. Research on basic processes in families unaffected by disasters shows parental distress impacts parenting behaviors (Gondoli and Silverberg, 1997; Papp et al., 2005), which in turn can impact child adjustment. Indeed, meta-analytic work quantitatively synthesizing the research on youth exposed to trauma has established links of moderate magnitude between parental depression, parental post-traumatic stress disorder (PTSD), and child posttraumatic stress symptoms (Morris et al., 2012).

The relevance and impact of parental distress on children's development of posttraumatic stress and emotional and behavioral problems may vary across different types of potentially traumatic events, and events that directly affect *both* parents and children – such as large-scale community events and disasters – may be associated with particularly strong links between parental distress and child post-event functioning. When parents endure the same traumatic event as their children, they themselves are at heightened risk for posttraumatic stress and general distress, which in turn is associated with greater child psychopathology (e.g., Bryant et al., 2004). In fact, one study found mothers' reactions to a devastating wildfire was an even stronger predictor of children's PTSD symptoms than children's own exposure to the wildfire itself (McFarlane et al., 1987).

Importantly, given that children and caregivers are more likely to endure similar forms and doses of exposure following disasters relative to the aftermath of other smaller-scale potentially traumatic child experiences (e.g., car accidents), it is not always clear to what extent caregiver distress is directly linked to post-disaster child functioning or whether such associations may simply be due to shared caregiver-child disaster exposure. For example, if a parent and child both lose their house in a wildfire, they may both be distressed, but it is difficult to disentangle the effects of losing one's house on both parent and child adjustment from direct links between parent and child adjustment that truly speak to the intergenerational transmission of post-disaster distress.

Research examining intergenerational distress and maladjustment associations in traumatized populations has been limited, and the unique contributions of caregiver distress in predicting child posttraumatic responses following community-wide disasters in which caregivers and children may share traumatic experiences remains poorly understood. Previous work examining links between parent and child distress following community-wide disasters has been constrained by factors such as small sample sizes and failure to control for caregiver-child shared exposure to potentially traumatic events (e.g., Birmes et al., 2009; Jones et al., 2002; Kiliç et al., 2003; Koplewicz et al., 2002). Understanding unique relationships between caregiver and child adjustment following disasters, over and above the influences of shared traumatic exposure, is critical to better identify youth at elevated risk for poor adjustment following potentially traumatic exposure.

The 2013 Boston Marathon bombing and subsequent manhunt offers a unique opportunity to study intergenerational distress and maladjustment on a large scale after accounting for shared traumatic exposure, given the enormous number of families that were directly affected (e.g., more than half a million families attended the Marathon and 1 million families were under the subsequent shelter-in-place warning during the manhunt). Unlike most researched terrorist attacks that have targeted office buildings of high symbolic value, the Marathon attack specifically targeted a family event in which large numbers of parents and children jointly attended and experienced the events together.

1.1. 2013 Boston Marathon bombing and subsequent manhunt

On Monday April 15th, 2013, the finish line at the Boston Marathon became a site of terror when two coordinated bombs were detonated among the crowds cheering on runners. Three were killed and 264 others were injured, as a sense of fear and shock overcame the region. In the days following the attack, speculation about suspects at-large built until surveillance photographs of two men were released Thursday evening, setting off a chain of dramatic and violent events. After the murder of a uniformed officer and an armed cariacking in which a hostage was taken, police chased the two suspects to the quiet residential suburb of Watertown, where further explosions and gunfire ensued during a shootout. One suspect was killed during the shootout, while the second escaped. An emergency "shelter-in-place" warning was declared for nearly 1000,000 area residents. Uniformed officers armed with heavy artillery roamed the streets of Watertown and Boston, entering and searching homes for the remaining suspect, as many families in the area of greatest manhunt activity hid in their basements. Roughly eighteen hours later, following a second wave of heavy gunfire and explosions on residential property while thermalimaging helicopters circled overhead, the second suspect was apprehended.

These events collectively presented a series of potentially traumatic events over several days for Boston-area families. Media coverage was ubiquitous, and those not present at the actual events were repeatedly exposed to the carnage and violence through media-broadcast pictures and videos. One study of the impact of these events on area youth found that 11.3% of Marathon-attending youth exhibited clinically elevated posttraumatic symptoms, with seeing dead bodies or injured people or knowing someone injured or killed associated with the largest increases in PTSD symptoms (Comer et al., in press). In addition, Comer and colleagues found that exposures to potentially traumatic events during the manhunt were even more robustly associated than attack-related exposures with a range of children's post-event outcomes, including emotional symptoms, conduct problems, hyperactivity/inattention, and peer problems.

1.2. The present study

Because of the nature and scope of the 2013 Boston Marathon bombing and subsequent manhunt, this large-scale event provides an opportunity to overcome limitations of previous work examining intergenerational distress and maladjustment associations following children's disaster exposure. Specifically, we examined relationships between caregiver distress, caregiver-child shared traumatic exposure, and a range of child psychiatric outcomes among 460 Boston-area families following the 2013 Boston Marathon bombing. It was hypothesized that: (a) higher levels of caregiver distress would be associated with poorer child psychiatric functioning across clinical domains following the events, and (b) that these relationships would remain significant even after accounting for shared exposure to potentially traumatic experiences during the week of the bombing and manhunt. Further analyses examined the extent to which caregiver distress moderated relationships between child exposure to potentially traumatic events and child psychiatric functioning after accounting for caregiver traumatic exposure.

2. Methods

2.1. Design and participants

The Boston University Charles River Campus IRB approved all study procedures. Parents and caregivers of children between the ages of 4 and 19 years living within 25 miles of the Marathon attack site or Watertown, Massachusetts were recruited to participate in a survey

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