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Child Disaster Mental Health Services: a Review of the System of Care, Assessment Approaches, and Evidence Base for Intervention

Betty Pfefferbaum[1] · Carol S. North[2,3]

Abstract Several decades of research have informed our knowledge of children's reactions to disasters and the factors that influence their reactions. This article describes the system of care for child disaster mental health services using population risk to determine needed services and a stepped care approach built on assessment and monitoring to advance children to appropriate services. To assess the evidence base for disaster interventions, recent reviews of numerous child disaster mental health interventions are summarized.

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✉ Betty Pfefferbaum
   Betty-Pfefferbaum@ouhsc.edu

   Carol S. North
   Carol.North@utsouthwestern.edu

1 Department of Psychiatry and Behavioral Sciences, College of Medicine and Terrorism and Disaster Center, University of Oklahoma Health Sciences Center, 920 Stanton L. Young Boulevard, P.O. Box 26901, WP3217, Oklahoma City, OK 73126-0901, USA

2 The Altshuler Center for Education & Research Metrocare Services, 1380 River Bend Drive, Dallas, TX 75247-4914, USA

3 Department of Psychiatry, The University of Texas Southwestern Medical Center, 6363 Forest Park Road, Dallas, TX 75390-8828, USA

Introduction

Several decades of research have informed our knowledge of children's reactions to disasters and the factors that influence their reactions [1, 2]. A concerted focus on child disaster mental health interventions emerged in the early part of this century at a time of heightened concern following the September 11 attacks. Since then, numerous interventions have been created and evaluated [3••, 4–7, 8•, 9•, 10, 11]. To a lesser extent, the child disaster mental health system of care has been examined. This article describes the services and service delivery system organized to care for children in the aftermath of a disaster, the importance of assessment and strategies for assessment, the value of a stepped care approach, and the evaluation research exploring child disaster mental health interventions.

The Child Disaster Mental Health System of Care

Child disaster mental health services are provided by a network of existing mental health and child-serving programs that temporarily redirect resources to serve emergent needs as well as new programs created explicitly to address disaster effects. Disaster services include both a public health and a clinical focus [12••]. The public health emphasis is on coping, resilience, and support with interventions aimed at reducing distress, normalizing children's reactions, and identifying those in need of services. For example, many children, their families, and the organizations that serve them benefit from public health approaches that provide information and social support especially early after an event. The clinical focus is on pathologic and maladaptive emotional and behavioral reactions most common in those with direct and interpersonal exposures and/or those with pre-existing vulnerabilities

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[12••]. These services are needed for a smaller number of children who experience clinical problems requiring formal treatment.

In recent years, the integration of mental and behavioral health considerations and services into public health, medical, and pediatric disaster management has been widely advocated [12••, 13, 14, 15••, 16]. Integrated services should facilitate access to, and diminish the stigma associated with, mental health care and should sensitize a range of providers to the emotional needs of children and families. Thus, services may be delivered in emergency shelters, family assistance centers, medical and pediatric health care settings, schools, day care settings, youth centers, faith-based institutions, volunteer organizations, and community facilities [12••].
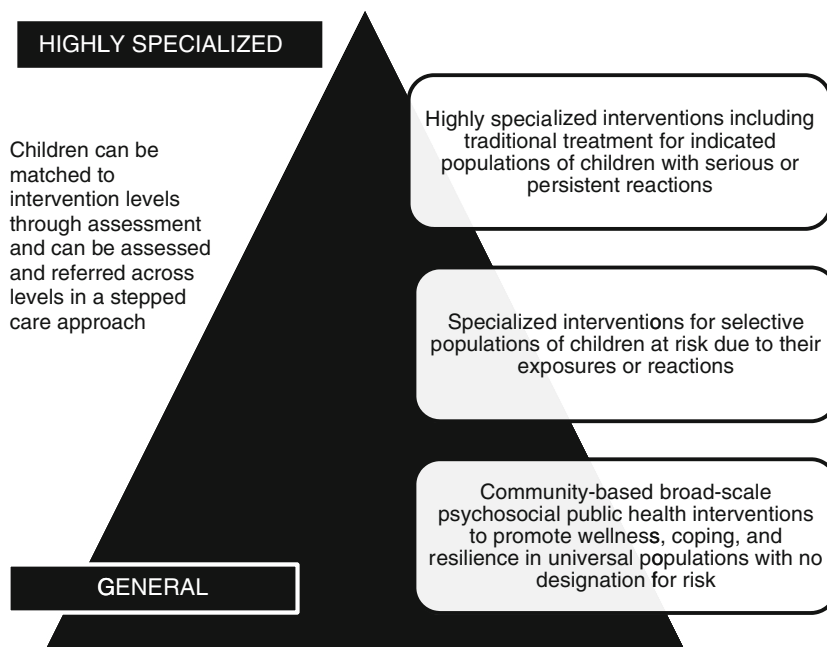
State and local government are responsible for disaster management with federal programs and funding available upon declaration of an event as a major disaster that exceeds the capacity of the state or local government to respond. The Federal Emergency Management Agency (FEMA) has authorized the Substance Abuse and Mental Health Services Administration (SAMHSA) to provide mental health funding to states experiencing a major disaster that overwhelms state and local resources. This funding supports SAMHSA's Crisis Counseling Assistance and Training Program (CCP) which covers needs assessment, individual and group crisis counseling, public education, and referral [17]. Services are strength based, outreach oriented, and delivered in non-traditional disaster-related settings (e.g., shelters), in pre-existing service delivery sites (e.g., health care facilities), and in major specialty child/adolescent service systems (e.g., education, social services) that modify usual operations to accommodate disaster needs. The CCP does not provide traditional mental health treatment and does not supplant existing services [17]. Crisis counseling services are not sufficient for some children who require more intensive and formal treatment services making referral capacity an essential component of these services.

Population Risk

Disaster services have been categorized according to the type of intervention and the populations being served. The terminology and definitions used to describe the populations vary but typically reflect children's disaster exposure, reactions, and risk for adverse outcome [4, 18, 19]. Pynoos and colleagues [20] described a three-tier system of disaster mental health services. The first tier—representing broad-scale psychosocial supportive interventions delivered to children, parents, family members, teachers, and others—is aimed at promoting adjustment and normal development and at preventing psychological, behavioral, or functional problems in exposed children. Tier one interventions can be delivered in school or community sites. The second tier of specialized interventions for moderately or severely affected children with direct and interpersonal exposure and loss who are at risk for maladaptive outcomes is designed to decrease psychological distress, promote normal development, and deliver early tertiary prevention. The third tier includes highly specialized interventions such as traditional psychiatric treatment for children with psychiatric illnesses [20]. See Fig. 1.

Fig. 1 Population risk pyramid and stepped care approach

Children can be matched to intervention levels through assessment and can be assessed and referred across levels in a stepped care approach

HIGHLY SPECIALIZED

Highly specialized interventions including traditional treatment for indicated populations of children with serious or persistent reactions

Specialized interventions for selective populations of children at risk due to their exposures or reactions

Community-based broad-scale psychosocial public health interventions to promote wellness, coping, and resilience in universal populations with no designation for risk

GENERAL

Institute of Medicine (IOM) nomenclature on risk and prevention is used to depict universal, selective, and indicated services [21, 22]. Universal psychosocial public health interventions are designed for the general community as preventive to promote wellness, coping, and resilience. These services are delivered to all children regardless of their disaster exposure or reactions [4]. Selective interventions are intended to enhance coping in those at heightened risk based on exposure or reactions [4, 23] such as those with high levels of posttraumatic stress but no other risks for long-term functional impairment and/or directly exposed children who are not distressed or exhibiting impaired functioning [4]. Indicated treatments typically focus on clinical symptoms or disorders and are designed for those with serious and/or persistent reactions such as children with marked distress, persistent posttraumatic stress reactions, and/or other comorbid symptoms or other risk factors for adverse outcome [4] or for children with disaster-related psychiatric illnesses or children identified through screening to receive the intervention [18]. See Fig. 1.

Stepped Care Approach

A stepped care approach advanced by Ronan and colleagues [19] and recommended in a recent IOM study on community health resilience [24] matches interventions to children's needs through multiple assessments and sequenced interventions [19]. This structured approach integrates assessment and referral to more intensive interventions as indicated as well as ongoing evaluation of treatment response [19]. More recently, Salloum and colleagues [25] described a stepped care approach to deliver cognitive-behavioral therapy to traumatized young children. They identified two guiding principles fundamental to stepped care models—the first step must be sufficiently intensive to be likely to result in benefit and should be least restrictive with respect to therapist time, and the model must systematically monitor children's progress to determine if continued intervention is needed and when advancement to the next step is indicated. The therapeutic approach, types and number of steps, training of providers, entry point, and inclusion of parents should be considered in developing stepped care approaches [25]. See Fig. 1.

Few studies have evaluated interventions delivered in a stepped care approach to demonstrate the application of this model [26–29]. For example, Layne and colleagues [28] established the "feasibility, impact, and sustainability" of a classroom-based psychoeducation and skills intervention, the first of three intervention tiers, in a study of war-exposed children (p. 1059). They concluded that their three-tier approach was both "effective and efficient" (p. 1059). In general, these stepped care studies have reported positive results on most outcomes measured [26–28]. Noteworthy, however, in a September 11 study, depressive symptoms increased

after the second tier individualized intervention perhaps because this second tier did not provide the social support that was available in the first tier classroom intervention [26]. In a recent study, Martin and colleagues [29] described a stepped care approach with postdisaster psychological services offered in the primary care context. Assignment to one of four interventions was based on assessment. A normalization intervention was used for those with mild reactions that did not constitute a disorder; brief group intervention was used for those with mild to moderate disorders; individual treatment was available for those with posttraumatic stress disorder (PTSD) or severe adjustment disorders; and referral to a mental health center was provided to those with prior mental disorders reactivated by the disaster and for those with severe mental disorders [29]. The investigators concluded that their stepped approach was "adequate," but they noted that they did not apply the protocol exactly in children, and while the outcomes were generally positive, the authors presented little data on children ([29], p. 8).

Assessment

Assessment of both individual and community need is an essential component of disaster response [15]. Various procedures include needs assessment, screening, health and mental health surveillance, registries, clinical evaluation, and intervention and service evaluation [20, 30, 31]. At the community level, needs assessment provides a cross-sectional estimation of disaster-related damages and needs, and surveillance is used to monitor health and behavior over time. Both can be helpful in focusing response efforts for appropriate use of resources [20]. Registries can be used to track medium- and long-term outcomes [30]. At the individual level, assessments include screening to determine the need for services and to link children to needed services and clinical evaluation to identify psychopathology [15••, 20, 31, 32•].

Screening

Screening can be used with exposed children to identify those with heightened risk for adverse outcomes and functional impairment and to identify children from the larger population of indirectly affected children and from groups with unknown exposures [32•]. Screening, which is relatively simple and economical, makes it possible to assess large numbers of children when time and resources are limited [32•]. The appropriate timing of screening is in debate given that distress is pervasive postdisaster [33] and that, for example, a diagnosis of PTSD cannot be made until 1 month postexposure [34]. Screening can be conducted in sites where children naturally congregate such as schools [15••, 32•]. To

enhance feasibility and to obtain meaningful results, screening tools should be uncomplicated and brief, appropriate in content to reflect the disaster phase and context, acceptable to those being screened, and easy to administer and score [15••, 32•, 35, 36]. See Table 1 for commonly used assessment tools as detailed in a paper on child disaster research methodology [50].

One problem associated with screening is the potential of inappropriately labeling children [51, 52] such as applying the diagnosis of PTSD without qualifying exposures or in children who do not meet full diagnostic criteria. Another potential problem is the failure to identify some children in need of attention because, for example, children may not report their distress or their symptoms may fluctuate. Screening does not establish diagnoses nor does it establish prevalence rates of psychiatric disorders [32•]. Children who screen positive for psychiatric risk (most often for PTSD or major depression) should be referred for a comprehensive clinical evaluation. Children who on screening evidence distress but not increased risk of psychopathology should receive public health interventions; those who demonstrate no problems on screening may not need intervention but may benefit from public health measures that normalize the trauma experience and provide social support [32•].

Table 1   Commonly used assessment instruments

Posttraumatic Stress

Child PTSD Symptom Scale (CPSS) [37]

Diagnostic Interview Schedule for Children/Diagnostic Predictive Scale (DISC/DPS) [38, 39]

Impact of Event Scale Revised (IES-R) [40]

University of California at Los Angeles Post-Traumatic Stress Disorder Reaction Index (UCLA PTSD RI) [41]

Anxiety

Child Behavior Checklist (CBCL) [42]

Diagnostic Interview Schedule for Children/Diagnostic Predictive Scale (DISC/DPS) [38, 39]

Revised Children's Manifest Anxiety Scale (RCMAS) [43]

State-Trait Anxiety Inventory for Children (STAIC) [44]

Depression

Center for Epidemiological Depression Scale (CES-D) [45]

Child Behavior Checklist (CBCL) [42]

Children's Depression Inventory (CDI) [46]

Diagnostic Interview Schedule for Children/Diagnostic Predictive Scale (DISC/DPS) [38, 39]

Behavior

Behavior Assessment Scale for Children (BASC) [47, 48]

Child Behavior Checklist (CBCL) [42]

Diagnostic Interview Schedule for Children/Diagnostic Predictive Scale (DISC/DPS) [38, 39]

Strengths and Difficulties Questionnaire (SDQ) [49]

Clinical Evaluation

The clinical evaluation, which includes a full diagnostic assessment to identify psychopathology and guide treatment, is appropriate for directly exposed children, those whose family members or other close associates are directly exposed, those who are identified as at risk for psychiatric disturbance through screening, and those with known pre-existing vulnerabilities (e.g., prior trauma, pre-existing conditions). The chaos of the acute disaster environment and the pressure of time may limit the process and content of the evaluation which ideally assesses full diagnostic criteria for likely and appropriate psychiatric disorders. If necessary, an abbreviated, more focused assessment may suffice in the short term until a more comprehensive evaluation can be conducted [32•].

The clinical evaluation requires obtaining information from a parent, caregiver, or teacher as well as from the child [32•]. While children typically provide the best information about their personal experiences, perceptions, and reactions, parents provide information about the child's development and history, objective behaviors, and functioning [20, 32•]. Parents may be unaware of important details of their child's experiences and may underestimate their children's distress. Moreover, the parents' own experiences and reactions may influence their impressions of their children's reactions [32•].

The diagnostic evaluation is used to direct the formulation of a treatment plan and determine the need for referral. If the evaluation reveals a psychiatric disorder, the child should be referred for treatment. Children with subclinical distress also merit attention and are likely to benefit from psychosocial support and public health interventions like psychological first aid, psychoeducation, and a variety of multimodal universal approaches focused on enhancing coping and resilience.

Interventions

In recent years, numerous child disaster mental health interventions have been developed and evaluated to address both public health and clinical concerns. Recent reviews have examined universal [10], selective, and indicated [4] interventions; school-based [53] and preparedness [54, 55•, 56•] interventions; debriefing [57, 58]; and treatments for childhood PTSD or PTSD symptoms [59, 60•, 61]. To explore the quality of the extant evidence base, additional reviews have reported the findings of meta-analyses [5, 11, 62] and the examination of methodological rigor in intervention studies [3••, 7, 62]. In general, studies support the use of interventions, especially interventions using cognitive-behavioral techniques, over no intervention [3••, 5]. For example, two popular evidence-based cognitive-behavioral interventions, Cognitive-Behavioral Intervention for Trauma in Schools and Trauma-Focused Cognitive-Behavioral Therapy, have both been used

successfully with children exposed to disasters [63]. The weight of the evidence does not support the use of any one type of intervention over other types of intervention, however [3••, 6, 7, 60•].

Recent reviews have identified and described the techniques and components used in child disaster interventions [6, 8•, 18, 20], the timing of intervention delivery and the settings in which they are provided, and other aspects of delivery [5, 9•]. Many postdisaster interventions are multimodal, and for the most part, studies have not dismantled interventions to identify the components responsible for benefit [18]. Moreover, studies have not eliminated the possibility that it is some common factor or factors—such as the expression of concern, focused attention on the child's trauma experience and reactions, and the expectation of benefit—responsible for the benefit of interventions [8•, 10].

In addition to distinguishing the disaster population of focus (e.g., universal, selective, indicated) and the timing of intervention delivery, a framework for services must consider the setting where interventions are offered and the providers who implement the interventions. The choice of setting for disaster services depends in part on the characteristics and effects of the disaster, the exposures and experiences of the children being served, the type and goals of the services being administered, and the available sites and providers to deliver the services. Schools are a popular venue for delivering disaster services and interventions, but other venues include, for example, primary care or faith-based facilities, after-school and youth programs, other community settings, and even shelters and refugee camps [9•]. Pfefferbaum and colleagues [9•] found that most of the child disaster intervention studies they reviewed were conducted in schools. After examining 19 trauma intervention studies, including 8 on disaster interventions, Rolfsnes and Idsoe [53] concluded that interventions delivered in schools and by school personnel were beneficial for children exposed to a traumatic event or events.

Many children who are exposed to disaster are resilient [1, 59], especially those with minimal exposures and reactions, while other children with severe reactions and/or pre- or co-existing psychiatric disorders may need traditional care including individual and family therapy and even pharmacotherapy. Use of medications should be based on a comprehensive evaluation and should be adjunctive to psychotherapeutic interventions with psychopharmacologic agents chosen to focus on symptoms such as acute sleep disturbances, anxiety, depression, agitation, or aggressive behavior interfering with functioning [12••].

Conclusions

Child disaster mental health services can be organized around disaster trauma exposures and risk using tiers to address the level of mental health response needed. Assessment is crucial to the process. A stepped care approach provides assessment and monitoring to direct children to services. Many children exposed to disaster are resilient and will recover with supportive public health measures while others may have more intensive needs requiring formal treatment. Numerous interventions have been created and evaluated, but careful matching of interventions to children's needs to assure that they receive the most appropriate care available warrants further attention.

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