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School-based mental health services in post-disaster contexts: A public health framework

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Abstract
Large scale natural disasters pose serious risks to mental health and simultaneously wreak havoc on the very systems called upon to ameliorate those risks. School-based mental health services have been identified as a potential mechanism through which gaps in service delivery systems can be addressed in post-disaster environments. We believe that a public health framework provides a useful guide for school psychologists who may be called upon to develop school-based systems of care following a disaster. In this article we discuss considerations and challenges in the application of this model in the context of our experience developing school-based mental health services in New Orleans, Louisiana, USA, following Hurricane Katrina.

Keywords
Hurricane Katrina, public health, school-based mental health

On August 29, 2005, the residents of New Orleans, Louisiana, were confronted with one of the worst disasters ever to befall the United States (Abramson & Garfield, 2006), resulting from the landfall of Hurricane Katrina and the

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catastrophic failure of the city's levee system due to engineering and design flaws (US Army Corps of Engineers, 2006). These events conspired to inundate 80% of the city with floodwater, damage 71.5% of the housing stock (US Department of Housing and Urban Development, 2006), and result in almost 400 deaths in Orleans Parish alone (Bourque, Siegel, Kano, & Wood, 2006). Because of the degree of devastation and the complexity of draining the floodwater from the city, residents were under a forced evacuation for five weeks (DeSalvo, Hyre, Ompad, Menke, Tynes, & Muntner, 2007).

Like the rest of the city, the public school system was devastated by Hurricane Katrina and the flood. All 64,000 New Orleans public school students were displaced and 85% of the 128 school buildings suffered some damage; 35% sustained significant damage (The Boston Consulting Group, 2007). Nearly all school employees were laid off within days of the storm, which left over 4,000 public school teachers without pay or health insurance. By January 2006, 17 public schools and nine parochial schools re-opened in New Orleans. However, school re-openings were plagued by numerous problems, including delays in acquiring supplies and textbooks, difficulties with transportation, and nonfunctional information technology (The Boston Consulting Group, 2007). In addition, teacher morale was low due to the system-wide firings and the new, often demanding, application process to be re-hired on year-to-year contracts (Center for Community Change, 2006).

The students returning to New Orleans public schools faced their own challenges. In a survey conducted six months after Hurricane Katrina of 665 randomly selected residents receiving subsidies from FEMA, caregivers reported that 44% of children were displaying new mental health problems, including depression and anxiety (Abramson & Garfield, 2006). In another survey of 2,200 youth aged 9- to 18-years-old, almost half of the youth met the cutoff for a mental health referral, with posttraumatic stress and depressive symptoms the most common presenting problems (Osofsky, Osofsky, Kronenberg, Brennan, & Cross Hansel, 2009). The high rates of mental health problems, and particularly posttraumatic stress symptoms, following Hurricane Katrina are not surprising (Norris et al., 2002). In fact, exposure to severe natural disasters commonly involves what is often considered the hallmark of traumatic exposure: perceived life threat (APA, 2000). Youth exposed to natural disasters often perceive their lives or the lives of loved ones to be threatened, and both perceived and actual life-threat during the disaster has been shown to be a powerful risk factor for poor mental health outcomes in children (LaGreca, Silverman, Vernberg, & Prinstein, 1996). Furthermore, loss of one's possessions or the destruction of one's community has the potential to seriously challenge a child's basic sense of safety and elicit the state of panic typically associated with traumatic exposure (Scheeringa & Zeanah, 2008), representing another potent risk factor for poor mental health outcomes. Several other risk factors commonly experienced among youth exposed to disasters include the death of loved ones, ongoing loss and disruptions associated with the community-level impact of the disaster, and the recurring threat

related to geographical location and recurrent seasons of increased risk of specific natural hazards (Overstreet, Salloum, Burch, & West, 2011).

Despite compelling findings that a considerable proportion of children develop and maintain PTSD symptoms in the wake of natural disasters (LaGreca et al., 1996; Russoniello et al., 2002; Shaw, Applegate, & Schorr, 1996; Shaw et al., 1995; Vernberg, LaGreca, Silverman, & Prinstein, 1996), major obstacles often exist in providing mental health services to those children. Following Hurricane Katrina, as the need for mental health services grew, access to services diminished. One estimate suggested that only 22 of 196 psychiatrists practicing in the area prior to Hurricane Katrina continued to practice after the storm (Weisler, Barbee, & Townsend, 2006). Another study examining the loss of psychologists in the greater New Orleans area found that from 2005 to 2007, the workforce decreased by 35% (Faust, Black, Abrahams, Warner, & Bellando, 2008). A rapid needs assessment documented major gaps in mental health services for children and recommended school-based health services as one mechanism to address those gaps (Abramson & Garfield, 2006).

School-based health services have the potential to capitalize on several known protective factors that buffer youth from the negative impact of disasters. At the most basic level, school-based services go hand and hand with the re-establishment of schooling, which is a widely acknowledged protective factor signaling a return to 'normal' for youth, families, and other community members (Ager, Stark, Akesson, & Boothby, 2010; Masten & Osofsky, 2010). The bolstering of social support through interactions with teachers and peers is another well-established protective factor (La Greca et al., 1996; Pina et al., 2008; Vernberg et al., 1996) that is part and parcel of school-based mental health services. School-based services also tend to embrace a focus on the entire community, including the parents of students attending the school. The inclusion of parents in this service provision model is critical, given the key role they play in helping their children adapt to disaster exposure (Masten & Osofsky, 2010). For example, in a sample of 70 children and their mothers assessed six months after Hurricane Katrina, one study found that new mental health problems among children were significantly correlated with new mental health problems in their mothers (Scheeringa & Zeahnah, 2008).

Although the potential of school-based mental health services was acknowledged by national experts, local discussions leading up to the re-opening of public schools in New Orleans often failed to include any systematic planning for the mental health needs of students returning to the city (S. Overstreet, personal communication, January 4, 2006). This was not completely surprising given that the 17 public schools to first open in the city were being operated by nine different governing bodies (Center for Community Change, 2006) and the major focus of most administrators was on turning around a school system that was failing long before Hurricane Katrina (The Boston Consulting Group, 2007).

There were three major assumptions underlying the authors' efforts to contribute to the post-disaster recovery. Given the substantial research establishing the link between school achievement and mental health (Greenberg et al., 2003;

Zins, Bloodworth, Weissberg, & Walberg, 2004), we expected that unmet mental health concerns would be a major impediment to student achievement in a post-Katrina environment. In addition, we expected that all students returning to New Orleans needed coping skills for responding to both their Katrina-related experiences and the day-to-day stressors of living in a post-disaster environment. Finally, we recognized the need for a broad system of care that would provide a continuum of services for youth, and believed that the school was the ideal institution in which to situate such a system of care. Our goal was to create a system that included mental health treatment for students as well as education and support for teachers and parents responsible for those students. Fortunately, we identified a school that recognized the need for such comprehensive service delivery. What follows is a discussion of the public health framework that guided our post-Katrina work along with a discussion of the considerations and challenges we faced in the application of this framework.

Public health framework

The publication of the US Surgeon General's report on mental health (US Department of Health and Human Services [USDHHS], 1999) stimulated discussions and proposals for a paradigm shift in school psychology (2002 Future of School Psychology Conference; Nastasi, 2000; Nastasi, Moore, & Varjas, 2004; Strein, Hoagwood, & Cohn, 2003; Ysseldyke et al., 2006). The outcome of such discussions were recommendations for adopting a public health model (i.e. focused on population-level prevention rather than individual-level remediation; Rogers & O'Byron, 2008) to replace the traditional clinical or medical model that historically guided school-based practices, particularly within the context of school-based mental health service delivery. Consistent across the proposals for a paradigm shift in school psychology were the key components of a public health approach to school-based mental health (see Nastasi et al., 2004):

1. *Continuum of services*. Mental health services should be provided along a continuum, ranging from mental health promotion to treatment. Within this continuum, service delivery would include opportunities for developing social-emotional competence and skills for coping with life stressors for all students as part of a health promotion or risk prevention framework. In addition, school-based mental health services would include risk reduction programming for students with mild adjustment problems or who were identified as at risk for mental health problems based on personal and situational factors. Finally, services would include intervention or treatment for students diagnosed with mental disorders.
2. *Ecological perspective*. Service delivery models must consider the ecological contexts that influence the well-being of children and adolescents, consistent with Bronfenbrenner's (1989) ecological perspective. Being sensitive to the relational, social and cultural environments of students requires considering the potential

influence of key ecological contexts of family, school, peer group, neighborhood, community and society; the reciprocity of the child and the ecology (i.e. the child also influences the social environment); and the interaction of these contexts (e.g. family-school relationships). Ecological considerations have implications for needs assessment and program development, implementation, and evaluation.

3. *Cultural sensitivity*. Adopting an ecological perspective necessitates attention to cultural factors such as the values, beliefs, language, and behavioral norms relevant to school, family, peer group, and to potential cultural conflicts (e.g. between family and peer group). Developing culturally appropriate services requires knowledge of the culture (e.g. shared beliefs and norms of family) and the individual child's interpretations of culture and cultural conflicts. In the context of mental health service delivery, this requires an awareness of how psychological distress is conceived and manifested (e.g. behavioral versus somatic symptoms) and knowledge of individual and social resources for coping (coping skills, social support network, communal forms of coping) and how to best intervene to build on individual and cultural strengths.
4. *Participatory approach*. Achieving both ecologically oriented and culturally sensitive programming is perhaps best achieved through collaboration or partnerships with members of the key contexts, that is, involving peers, family members, and community members in program development, implementation, and evaluation. Participatory models of program development and community capacity building can guide school psychologists' approach to collaboration. Participatory models, for example, are characterized by building equal partnerships, fostering ownership, and building capacity within the existing systems (e.g. providing professional development for local school and community personnel).
5. *Cross-disciplinary interagency collaboration*. Developing comprehensive, culturally sensitive, ecologically valid services is likely to challenge the competencies and capacities of any individual professional or agency, thus necessitating partnerships among professionals (e.g. psychologists, educators, medical personnel, public health specialists) and institutions (e.g. schools, community mental health agencies).
6. *Research-intervention links*. Another critical component of effective programming is the application of empirically supported or evidence-based practices, coupled with systematic program evaluation. Attention to research as a tool for effective program development and implementation is consistent with the concept of the school psychologist as a scientist-practitioner who not only relies on research evidence but engages in research as an integral part of practice. Thus, school psychologists can apply research skills in the process of needs assessment related to individuals and systems, selection of evidence-based interventions, and documenting effective application to culture and context.

Using these components as the basis for addressing the psychological needs of students affected by Katrina, we developed and implemented a program for a school in the city of New Orleans, shortly after schools reopened. In the subsequent sections, we describe the project, discuss the challenges we faced in establishing comprehensive service delivery in a post-disaster context, and conclude with recommendations for future research, practice, and professional development.

New Orleans post-Katrina school-based project

The driving vision of the authors was to establish a system of prevention and intervention services to best meet the needs of the students, parents, and teachers returning to New Orleans five months post-Katrina. To achieve that vision, the authors had to navigate a chaotic post-disaster school system and develop effective partnerships to develop comprehensive, culturally sensitive, and ecologically valid school-based mental health services. What emerged from that work was a curriculum designed to help students cope with the trauma of Hurricane Katrina and effectively deal with stressors they encountered as they transitioned back to their homes, schools, and communities. Supporting the school-wide curriculum was a system of services that included ongoing teacher support and consultation, parent support and education, and individual and group therapy services for students. In the following sections, we discuss the steps, processes, and challenges involved in setting up the school-based program.

System entry in a post-disaster environment

The patchwork public school system that emerged following Hurricane Katrina made identifying points of entry into the system difficult. In fact, there was no single point of entry because rather than one public school system governed by a single School Board, there were four distinct school 'systems' governed by nine different bodies, including Orleans Parish School Board, the State's Recovery School District, the Algiers Charter School District, and six independent charter school administrations (Center for Community Change, 2006). We found a point of entry into one of the independent charter schools, which controlled two campuses including an elementary school and a middle/high school.

The first step in system entry involved meetings with the school administrators to discuss needs, resources, and strategies for proceeding. Entry was facilitated by the independent nature of the system, thus minimizing the levels of negotiation and approval; the shared commitment to providing support for students, teachers, and parents to promote coping with the immediate impact of Katrina and the ongoing challenges of adjustment; and the exigent circumstances created by the disaster. Thus, preparing the system for reopening and return of students and staff fostered expeditious decision making and commitments to work together.

Initial meetings were held in November 2005 in advance of the school's scheduled reopening in January. The team had less than two months to develop a plan

for service delivery to be implemented as the new school year commenced. Entry and agreement at the leadership level, however, does not ensure agreement by all stakeholders, in this case, the building-level teachers and staff. The process of establishing partnerships with the key stakeholders in the system became a critical next step.

Establishing and maintaining partnerships

The first two authors initiated this project based on a shared interest in and commitment to contributing to the recovery of New Orleans after Katrina, prior discussions related to collaborative work in the New Orleans schools, and existing contacts with the target school. The situation provided an opportunity for combining their interests and expertise related to comprehensive school-based mental health services.

The key stakeholders in the school were represented by the school's leadership team, which was made up of teachers, staff, and school administrators from both campuses. The process of participatory consultation (Nastasi, 2000; Nastasi et al., 2004; Nastasi, Varjas, Bernstein, & Jayasena, 2000) was used to build equal partnerships, foster ownership, and build capacity within the existing systems. The participatory model allowed us to engage the school's leadership team as partners in the process of developing, implementing, and evaluating the curriculum and other intervention services. As noted in the preceding section, the short timeframe for planning fostered team cohesiveness and decision making. A process that may have taken many months in a non-disaster context occurred in less than two months. As with any partnership, establishing and maintaining an effective alliance required ongoing attention to the perspectives and needs of different stakeholders. We achieved this in two ways: (a) an initial needs assessment and collaborative process of program development; and (b) a consultative process for maintaining ongoing communication, support, and monitoring of program implementation and impact.

The process of establishing partnerships involved a series of meetings with school administrators and members of the leadership team. These conversations were egalitarian and gave voice to all members of the group, which fostered a sense of group ownership over the process and the resulting products. Two initial meetings between the authors and the leadership team, each of which lasted one to two hours, took place in early December to discuss anticipated needs of the returning students and teachers and to establish shared goals and objectives. Building on this foundation, the leadership team met with the authors in early January for three hours to brainstorm ideas and approaches to the curriculum and supporting intervention services and to begin to develop components of the program. Team members were assigned specific program components to develop further, and the second author held individual follow-up meetings with each team member to review progress. The following week, the second author met with the leadership team to walk

through the entire program, make final changes, and problem solve logistics of implementation and support.

The initial partnerships forged during the planning and development stages were maintained and broadened through the participatory consultative process, which provided the mechanism for attending to specific needs of individuals and the system so that appropriate modifications to initial plans could be made. The second author spent a day each week at one of the two campuses to attend the team meetings of teachers at each grade level. During these meetings, the upcoming curriculum lessons were reviewed and any concerns about implementation were discussed. Teachers had an equal voice in discussions regarding implementation, which reinforced their sense of ownership and ongoing commitment to the curriculum. In fact, it was not uncommon for teachers to work with the authors to create modifications to specific lessons due to developmental issues or student responses to previous lessons. In addition, consultation also focused on logistical issues related to program implementation, student morale and reaction to the curriculum, and ongoing education on trauma reactions in children. During these meetings, teachers raised concerns about individual students and made referrals for treatment.

Needs assessment

The urgency of establishing a program within a limited timeframe precluded a long process of data collection to inform program development. Thus, needs assessment was restricted to addressing the immediate post-disaster recovery needs as perceived by the school personnel, who had all lived through the disaster and forced evacuation personally. In addition, this process was informed by prior research on post-disaster impact (e.g. LaGreca et al., 1996; Pfefferbaum, et al., 2006; Shelby & Tredinnick, 1995) and the authors' own experiences working with children exposed to disasters and other traumatic experiences (e.g. Nastasi's post-tsunami work in Sri Lanka; see Nastasi, Jayasena, Summerville, & Borja, 2011).

In addition to obvious concerns for supporting students who might be experiencing serious traumatic stress reactions, school personnel expressed concern over a number of stressors common to all students post-Katrina, including disruptions in social networks, daily encounters with reminders of the disaster (e.g. damaged and destroyed properties), and changes in routine. They felt that it was important to create opportunities for students to share their 'Katrina stories' and discuss ways of coping with daily challenges. School personnel recognized that parents, family members, and teachers whom students normally turn to for support were taxed with worries about housing, employment, rebuilding, and an uncertain future, and therefore emphasized the need to create supports for these adults. Given the scope and complexity of the concerns raised by school staff, the consensus was that a continuum of services involving prevention, intervention,

consultation, and support would be required to best serve the students, parents, teachers, and school staff.

Program development and implementation

The critical components of a public health framework, outlined above, guided program development efforts. Thus, we attempted to incorporate all of the following into a comprehensive service delivery model: (a) continuum of services, ranging from a classroom-based curriculum implemented by teachers to individual treatment for identified students; (b) ecological perspective, with attention to the key ecologies of students including classroom, school, family, peer group, and neighborhood; (c) cultural sensitivity, with attention to the specific and potentially conflicting cultural perspectives of students, parents, school personnel, and community; (d) participatory approach, characterized by initial team building and continued collaboration with school personnel; (e) cross-disciplinary and interagency collaboration, drawing from multiple disciplines within the school and available resources in the community; and (e) research-intervention links, with ongoing monitoring informed by data collection as part of the consultation process. Thus, program development involved systematic attention to each of these factors.

At the center of the program was a classroom-based curriculum, the Healing Curriculum,[1] designed to foster emotional awareness, provide a vocabulary for discussing emotional reactions, provide opportunities for making meaning from Katrina-related experiences, enhance coping skills, and facilitate identification and use of natural social support systems. The Healing Curriculum provided the basis for facilitating adjustment of all students, and provided the context for identifying and referring students who needed more intensive interventions delivered by school social workers and students from the school psychology program at Tulane, or through a community mental health facility. Supporting the curriculum and intervention components were teacher training and consultation, parent education and support, links to system-level procedures such as school-wide discipline plans, and ongoing monitoring and evaluation.

Development of the classroom-based curriculum and intervention components involved review and modification of existing theoretically and empirically based programs for fostering social-emotional development, coping with stress, and response to natural disasters or other crisis situations. Modifications were directed toward developmental, cultural, and contextual needs of the school and students, based on initial needs assessment and ongoing monitoring and evaluation of program implementation and impact.

The Healing Curriculum. The classroom-based curriculum was designed to be implemented by teachers within their regular classrooms. To meet the needs of students across the two school levels, primary and secondary, two versions of the program were developed in collaboration with teachers from grades K–5 and 6–10. Program design involved a process of reviewing relevant theory and research,

identifying existing programs to foster social-emotional development and adjustment to stress and trauma, and identifying or developing materials specific to the context of post-Katrina recovery in New Orleans. The theoretical foundations for the program included ecological-developmental, cognitive-behavioral, and rational-emotive. These foundations are consistent with those for comprehensive mental health programming, stress and coping, cooperative learning, and empirically based cognitive-behavioral therapeutic interventions. Details about the curriculum and sources are included in the manuals (Nastasi, Petrosini, Overstreet et al., 2006; copies can be obtained from the first author).

The 12-session curriculum included individual and small group collaborative learning activities focused on the following topics: Group problem solving; vocabulary of feelings; identification and expression of feelings; mapping and coping with stress/feelings in the body; coping with loss; coping with change; helping yourself; seeking support from others; supporting others; helping others in the community; class *mandala*;[2] closure. As suggested by session titles, students were provided with opportunities to identify and express feelings, identify stressful situations and experiences related to immediate response and long-term recovery after Katrina, identify the physical or somatic manifestation of feelings and stress, and identify ways to cope with stress and change. In addition, they explored ways to both seek and provide support as individuals and collectively with the community. The typical session involved a brief introduction by the teacher, individual reflective activity by students, small group collaborative activity, whole class discussion, homework assignment, and session evaluation by students and teacher (i.e. to document curriculum implementation and modifications, and student and teacher reactions).

To accommodate multiple modes of expression, activities included oral, written, graphic, and dramatic forms of expression. Teachers with expertise in the respective content areas (e.g. literature, writing, art, music) assisted in development of activities. In addition, cultural symbols were integrated into the program. For example, music specific to New Orleans (e.g. recordings of 'Do You Know What It Means to Miss New Orleans') was used to facilitate discussion of Katrina-related losses and ways of coping with the losses. Students individually created *personal totems* using the hieroglyphic symbol ⊗ painted by the National Guard on area homes flooded by Katrina to reframe the symbols as 'marks of recovery' (*KIDsmART.org*); students were encouraged to depict in the four sections symbols of what they mourned, elements of the earth that affected them, personal power symbols, and community power symbols. In the closing sessions of the curriculum, students created group *mandalas* from local environmental materials (e.g. sand, flowers, sticks) to depict the impermanence of material objects.

Prior to the implementation of the school-wide curriculum, the authors conducted a half-day workshop aimed at educating teachers about post-disaster reactions of children and adolescents, orienting them to the goals of the curriculum, and providing training on the implementation of the curriculum. Following training, the curriculum was implemented during one class period a week in all 42 classrooms across both campuses.

Support services. Several services were created to bolster the school-wide curriculum and support teachers and parents. Teachers were supported in the implementation of the curriculum by doctoral students and undergraduate students. Doctoral students in Tulane's school psychology program enrolled in a graduate course, *School-Based Mental Health*, taught by the second author. One doctoral student served as an official liaison at each campus and provided on-site coordination for the Healing Curriculum. In addition, doctoral students supervised undergraduate students who served as assistants to teachers in the classroom during implementation of the Healing Curriculum. Undergraduate students enrolled in service learning or internship courses at Tulane, Loyola, and Xavier Universities helped prepare materials for the lessons, co-led group activities, provided general classroom support, and helped gather teacher evaluations of each lesson. In addition to this direct support for the teachers of the school-wide curriculum, additional events and programs were created to provide support for parents and teachers.

Following the first week of classes, a parent workshop was conducted by the second author to inform parents about the school-wide curriculum their children would be participating in and to alert them to the intervention services available through the school. Information regarding typical reactions to disasters and signs of serious traumatic stress reactions also was provided. Orienting parents to the programming available at school can provide families with opportunities to take advantage of support and services of which they might have been previously unaware (Kirkley & Medway, 2003). Furthermore, parent education about school-based services can increase congruency between family and school belief systems and expectations for behavior, increasing the likelihood that these different environments will act in concert to produce positive child adaptation (Weems & Overstreet, 2008). Consistency and connectedness among the different contexts surrounding youth can foster their sense of interrelatedness and self-efficacy as they attempt to adapt to the post-disaster environment.

The school social workers also created ongoing opportunities for parent support through the creation of a parent support group that met at local coffee shops each week. Many parents living in the post-Katrina environment found it difficult to come to the school for meetings, so the opportunity for community-based meetings scheduled at different times during the day made it easier for parents to access the support offered by the school. Salloum and Overstreet (2008) found that this type of flexibility in service provision resulted in successful parent meetings for 73% of parents in their study of a different school-based intervention for youth experiencing post-disaster distress. The school social workers also provided support to teachers by arranging pot-luck lunches and free yoga classes on campus, which increased the sense of cohesion and collaboration among teachers, staff, and administrators.

Intervention services. Teachers or parents referred students for intervention services. Teacher referrals were made during the weekly meetings with the second

author. Teachers and parents could also contact one of the school social workers to make a referral. When the referral concern indicated trauma-related issues, students were administered a measure of traumatic stress symptoms (after obtaining parental consent) to determine their appropriateness for participation in a trauma-focused treatment. If appropriate, these students participated in the evidence-based group treatment, Cognitive Behavioral Intervention for Trauma in Schools (CBITS; Jaycox, 2003). If the referral concern was not trauma-related or it was determined that the student needed individual treatment, that treatment was provided by the school social worker.

Doctoral students enrolled in the graduate course mentioned above provided the CBITS group treatment under the supervision of the second author. CBITS is a skills-based treatment grounded in cognitive behavioral therapy, which is one of the few treatment approaches for posttraumatic stress reactions in children with solid empirical support (Feeny, Foa, Treadwill, & March, 2005). The CBITS treatment reinforced and built upon many of the skills emphasized in the Healing Curriculum; some of the main goals of CBITS are to increase emotional awareness, provide a vocabulary for discussing emotional reactions, help children identify the physical or somatic manifestation of fear-related feelings, and facilitate identification and use of natural social support systems (Jaycox, 2003). Unique to the CBITS treatment was the more specific and intensive focus on traumatic experiences, including exposure to traumatic memories through drawing and writing activities.

Program evaluation and research

Conducting research in post-disaster environments must be approached with great sensitivity. In post-disaster environments, community members often feel that research is an 'unwelcome intrusion on a painful experience' (Taylor & Chemtob, 2004, p. 790) and worry that children will perceive the research process as yet another stressful experience. Researchers must be willing to balance research needs with the clinical needs of the community (Salloum & Overstreet, 2008). In our work, we found that the school leadership team was committed to conducting an evaluation of the curriculum. However, they chose to do so through an assessment of teacher perceptions of the program and its effectiveness rather than a more comprehensive approach that directly assessed student mental health.

Eighteen teachers from the elementary school campus (72%) and 13 teachers from the middle-high school campus (76%) completed a 22-item survey that assessed the curriculum in six areas: Need for the curriculum; quality of the curriculum; preparation for implementation; implementation support; impact on students; and impact on teachers. In addition, one question assessed whether teachers thought they had made more or fewer mental health referrals than usual. Almost all teachers also participated in group interviews during team meetings at the end of the school year.

There was strong agreement among all teachers about the need to address student social-emotional health following Hurricane Katrina, although teachers at the

middle/high school felt somewhat less confident that a school-wide curriculum was the best approach to address that need. On average, all teachers agreed that the curriculum and the procedures were practical and that they had the time and materials to implement it. Overall, all of the teachers felt prepared to implement the curriculum, although the middle/high school teachers reported less confidence in their abilities than did the elementary school teachers. Teachers felt that student responsiveness to the program decreased over the course of the semester, particularly for Katrina-specific activities and/or discussions. Despite these concerns, the majority of teachers reported that implementation of the curriculum increased their ability to deal with student social-emotional issues and helped them gain a better understanding of their students. In addition, 70% of the elementary school teachers and 92% of the middle/high school teachers reported that they made fewer student referrals for mental health services during the semester than in years past. All of the teachers agreed that students would benefit from having a more general social-emotional curriculum as a regular part of the larger school curriculum.

Interesting associations emerged between the personal impact of the storm reported by teachers (damage to home, loss of property, relocation) and their perceptions related to program support. For example, elementary school teachers who reported higher levels of storm-related disruption tended to report lower levels of satisfaction with the support received for implementing the curriculum. Middle/high school teachers who reported higher levels of storm-related disruption tended to report less satisfaction with the quality of the curriculum, specifically with the amount of time necessary to manage the paperwork and have materials ready. These findings indicate that teachers who experienced disruption in their lives following Katrina might have benefited from extra support and assistance in implementing the curriculum. Our experiences, coupled with findings from other researchers (Reid & Dixon, 2001; Stein, 1997) suggest that school personnel may need to increase efforts to provide extra support and assistance whenever possible to teachers dealing with the fallout of disasters or attempting to help children cope with grief.

Conclusions and considerations for future work

The work described here provided a unique opportunity for the development of partnerships between school psychology professionals and schools to address the needs of students affected by a natural disaster that brought about long-term consequences for individuals, schools, and the community. In the context of facilitating children's recovery, we had opportunities also to provide support to adults in the community, specifically parents and school personnel. The project also afforded a unique context for training future school psychologists and informing us about the challenges of providing mental health services in a post-disaster context. Although efforts in disaster response are typically focused on immediate crisis intervention, we were able to focus on more long-term recovery in the context of schools reopening within post-disaster conditions. Based on our experiences and feedback from

our partners, we identified several areas that would benefit from future research and development efforts.

One of the challenges we faced was balancing the needs of students with those of adults. Facilitating the adjustment of students required attention to parents, teachers, and other school personnel. For example, evaluation of the teacher workshop revealed that the vast majority of teachers reported feeling at least some anxiety about implementing the curriculum. Teachers expressed concern that they might not always know what to say in response to students sharing their feelings, that they would become overwhelmed with their own feelings, and that the curriculum was an additional demand being placed on them during an already challenging year. These reactions seem reasonable and without a plan to overcome them, they could have led to the demise of the program. Therefore, it was critical to put into place supports to help them overcome their anxiety; the classroom assistants provided logistical and emotional support and the ongoing consultation with the second author and the doctoral students allowed for continued skill development in curriculum implementation. The school mental health professionals provided education and support to parents through a series of meetings. Given the significant needs of the adults caring for the student participants, we questioned if the support we provided was sufficient. Future efforts should include expanding service provision to include adults through partnerships with other service providers (e.g. working with community mental health providers who can more effectively serve adults).

Another challenge is the integration of research with intervention in an effort to evaluate the effectiveness of service provision. Although the school administrators welcomed the implementation of services, they were reluctant to endorse data collection for the purpose of research and evaluation. In addition, for ethical reasons, a post-disaster setting is not appropriate for implementing experimental designs. While acknowledging these concerns, we also recognized the importance of documenting the effectiveness of our efforts. We integrated activities and procedures into the process of program implementation (e.g. curriculum activities, session evaluations, documentation of ongoing communications with staff) that would provide some data for assessing program acceptability, integrity, and impact. Future efforts to identify seamless approaches to intervention and research/evaluation are warranted.

Participatory consultation may provide a mechanism to address administrators' concerns about research while simultaneously strengthening the quality of the intervention being implemented. The process of participatory consultation emphasizes that active contribution by stakeholders maximizes a program's cultural and contextual specificity, rendering interventions more appropriate and effective (Nastasi et al., 2004). Future iterations of curricula like the Healing Curriculum might call for ongoing formative data collection surrounding student needs and concerns, with the express intention for such data to be used in planning upcoming sessions and/or identifying students in need of more intensive interventions, in addition to providing information critical to conducting a complete evaluation

of the curriculum's effectiveness. The fact that data collection would enhance the intervention itself might increase acceptability to students, parents, and school personnel, and student reports of their specific stressors, supports, and coping strategies could provide critical information about the varied ways that they are responding to both the disaster and to the curriculum (Cole & Brown, 2002; Heath, Nickerson, Annandale, Kemple, & Dean, 2009). In addition, Klingman (1994) suggests that particularly in times of crisis, it might be fruitful to consider using more open-ended measures (e.g. freewriting) because traditional quantitative measures, such as questionnaires, might provoke anxiety. The potential contributions of qualitative data collection methods (individual interviews, focus group discussions) to intervention research have been to discussed elsewhere (Nastasi & Schensul, 2005); their particular utility in crisis-oriented work warrants future consideration.

A third challenge is common to many types of intervention programs—program sustainability. We were well aware of the likelihood that some program efforts would end once we withdrew our support. For example, although the school initially indicated an interest in developing a sustainable social-emotional development program, our follow-up contacts provided no evidence that the classroom-based efforts have continued. There are many possible explanations for this lack of sustainability. First, because the Healing Curriculum included an emphasis on disaster-related coping in addition to more general social-emotional skill building, the teachers and administrators seemed to associate social-emotional curricula with Hurricane Katrina. Therefore, since the 'Katrina experience' had been processed, they didn't fully realize the need for ongoing skill building around social-emotional skills. Second, funds supporting mental health services are often targeted to interventions that occur in the immediate post-disaster environment, not to comprehensive and sustainable programming that could adequately meet the continued need for mental health services five years after the disaster (Weems et al., 2010). Third, schools nationwide appear reluctant to adopt a comprehensive approach to addressing the social-emotional needs of their students (Stephan, Weist, Kataoka, Adelsheim, & Mills, 2007). Crisis intervention should be just one part of comprehensive school-based mental health programming. Providing a full range of services that includes prevention and early intervention can address the needs of most students and prevent the need for more costly services later on, such as special education, out-of-school placements (e.g. alternative school), hospitalization, and even court-based services (Sullivan & Morgan, 2010).

Perhaps the three issues raised here speak to the need for prevention planning and systems-level consultation as routine components of the school psychologist's role. A crisis situation provides the opportunity to implement mental health services for students at multiple levels, as we have demonstrated here. However, future research, development, and training efforts are critical in order to meet the needs of the adults responsible for students' well-being, to develop an empirical base to inform effective crisis intervention and long-term recovery, and to build sustainable programs. Practitioners, researchers, and university faculty can play key roles in

enhancing the contribution of school psychology to the recovery of individuals, schools, and communities from disasters and other traumatic experiences. In fact, the first two authors have developed a specialized training program in Trauma Focused School Psychology to enhance the capacity of school psychologists to effectively coordinate school-based mental health services responsive to the needs of trauma exposed youth; the third author is a trainee within that specialization.

Notes

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1 A copy of the curriculum can be obtained from the authors.

2 The *mandala* (as described in the curriculum) is a tool for gaining wisdom and compassion that serves to help individuals along the path to enlightenment. The group creation of a mandala allows participants to embrace the change and impermanence of life and the release of material objects. The focus is on release and healing. The inspiration comes from the work of Andy Goldsworthy, Christo, Robert Smithson, Ana Mendieta, Tibetan monks, Peruvian highlands ceremonial art, and other earth artists.

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