Mental Health Services in Louisiana School-Based Health Centers Post-Hurricanes Katrina and Rita

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Following Hurricanes Katrina and Rita, Louisiana school-based health centers (SBHCs) were called on to respond to a sharp increase in mental health needs, especially for displaced students coping with grief, loss, trauma, and uncertainty. To assess the impact of the hurricanes on the students and the needs of SBHC mental health providers (MHPs), we surveyed MHPs in each of the SBHCs under the auspices of the Louisiana Department of Health and Hospitals, Office of Public Health. SBHC practitioners from around the state reported that mental health service utilization rose during the 2005–2006 school year, but utilization of services increased most significantly in schools receiving the majority of displaced students. Anxiety and adjustment problems were noted as increasing the most following the hurricanes. A multitude of other conditions was also reported. By the time of this survey in April 2006, the reported prevalence of most symptoms had declined, but all remained above their pre-hurricane levels. Self-reported needs of SBHC MHPs are also discussed in light of the major natural disasters.

Keywords: disaster mental health, Hurricane Katrina, Louisiana, psychosocial needs, school-based health centers

There is increasing attention in public policy toward meeting children's health care and emotional needs to improve learning and academic performance (Greenberg et al., 2003; Zins, Weissberg, Wang, & Walberg, 2004). For children who otherwise lack access to care, this challenge can be met through school-based health centers (SBHCs; Baquiran, Webber, & Appel, 2002; Juszczak,

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Melinkovich, & Kaplan, 2003). The first SBHC in the United States opened in Massachusetts in the 1960s (Corder-McPherson, 1995). There are now over 1,400 SBHCs nationally, having become a major or primary source of health care for over 2 million children in 44 states (Dryfoos, 1994; Pastore & Techow, 2004; National Assembly on School-Based Health Care [NASBHC], 2006). Most SBHCs enroll nearly all students in the school (Kisker & Brown, 1996). They provide an accessible source of care for uninsured students. Nearly two thirds of SBHC users nationwide are African American (33%) or Hispanic (29%; NASBHC, 2006). Because of the complex psychosocial needs presented by children and youth in poor and medically underserved communities, SBHCs generally employ a multidisciplinary team model that includes psychologists and other mental health professionals, along with physicians, nurse practitioners, and physician assistants. By 1999, more than half (57%) of SBHCs nationally included on-site mental health services (Brindis et al., 2003). SBHCs are now considered a service delivery model that takes into account the relatively recent move toward "a human service approach," encompassing comprehensive care for the physical and mental health needs of students (Kury & Kury, 2006).

Mental Health Services in SBHCs

Mental health services have become an increasingly important component of SBHCs as emotional and behavioral concerns are the first or second most common presenting complaint at SBHC visits (Weist, Myers, Hastings, Ghuman, & Han, 1999). The efficacy of school-based mental heath programs is well established (Clayton, Ballif-Spanvill, & Hunsaker, 2001; Gance-Cleveland, Costin, & Degenstein, 2003). Treatment outcomes of properly developed and implemented school-based mental health programs are comparable to those achieved at community-based mental health centers (Armbruster & Lichtman, 1999). High-risk students are especially likely to benefit from mental health services delivered at SBHCs (Wilson, Lipsey, & Derzon, 2003).

Despite the increase in mental health services and the well-documented benefits of providing counseling in schools, there is still a need for more mental health services for students who lack access to other community-based resources. A report analyzing three national databases indicated that "80% of low income youths in need of mental health did not receive services within the preceding 12 months, with rates approaching 90% for uninsured families" (Kataoka, Zhang, & Wells, 2002). One way of combating the inadequate availability of mental health care is through SBHCs. Research has shown that students whose schools have access to an SBHC are much more likely to use mental health services and receive interventions for mental health problems that might otherwise go untreated (Juszczak et al., 2003; Weist et al., 1999). Providing access to comprehensive health care services for physical and emotional needs is especially important among the most vulnerable populations, including the poor, racial/ethnic minorities, the homeless, those living in rural areas, and those displaced by disasters, such as the hurricanes that ravaged the Gulf Coast in late summer 2005.

SBHCs in Louisiana

In 1991, the Louisiana State Legislature ratified the Adolescent School Health Initiative Act to facilitate the establishment of SBHCs. Mental health professionals (MHPs) have been integral to Louisiana's SBHC program since its inception, working as part of an interdisciplinary team generally including a physician/medical director, a registered nurse, and one or more primary care providers who may be physicians, nurse practitioners, or physician assistants. The MHP, generally either a psychologist or clinical social worker, is required to have at minimum a master's degree in an appropriate field and be licensed or license-eligible in the state of Louisiana. The MHP provides risk assessment, crisis intervention, case management, and individual, group, or family therapy. A few sites also provide substance abuse prevention and counseling and psychiatric services and consultation.

Prior to Hurricane Katrina, there were 55 SBHC sites in Louisiana. These SBHCs provided services in 23 of the state's 64 parishes, with approximately 41,300 children enrolled. More than half of Louisiana's SBHCs were in rural communities, and nearly three fourths were in middle, junior, or senior high schools.

As indicators of child health status prior to the hurricanes, in 2005, Louisiana ranked 49th in overall health, including child health, in the United States (Annie E. Casey Foundation, 2006; United Health Foundation, n.d.; U.S. Census, 2005). Poverty levels in New Orleans were 3 times the national average and worst among the 50 states, with 28% of children living below the poverty line (Annie E. Casey Foundation, 2006; Loewenberg, 2005).

On August 29, 2005, Hurricane Katrina struck the Louisiana Gulf Coast, followed by Hurricane Rita on September 24, 2005. Hurricane Katrina was the deadliest storm since 1928 and the costliest natural disaster in United States history (Centers for Disease Control and Prevention [CDC], 2006a). The subsequent flooding that inundated New Orleans forced over 400,000 people to evacuate the metropolitan area. Less than 1 month later, Hurricane Rita made landfall near the Texas and Louisiana border, ravaging southwestern Louisiana. This was the first time that two storms of Category 5 magnitude occurred in the Gulf of Mexico during the same hurricane season (National Climate Data Center, 2005).

Using data from Louisiana's Student Information System, Pane, McCaffrey, Tharp-Taylor, Asmus, and Stokes (2006) estimated that 196,000 students were displaced following damage and destruction of their homes and schools. The Louisiana Department of Education (2005) estimated that 61,000 displaced students attended other schools in the state; the others were dispersed throughout the country. Many of the students who remained in Louisiana attended multiple schools during the year, and an estimated 10,000 were no longer enrolled in Louisiana schools by the end of the school year. The impact of the hurricanes on New Orleans schools also affected health care, as six New Orleans SBHCs were damaged or destroyed.

Displaced students faced additional challenges, including separation from and loss of family members and friends, loss of homes and property, family loss of income and livelihood, and disruption of community, culture, and social networks (Frohlich, 2005). Early research on the impact of Hurricane Katrina at Federal Emergency Management Agency-subsidized shelters found that nearly half of the children who had been receiving adequate health care prior to the hurricanes had lost access to these services. Children's new emotional or behavioral problems were reported by nearly half of the parents (Abramson & Garfield, 2006). Similarly, the CDC (2006b) found that 13% of households surveyed after the storm had at least one family member with new mental health concerns. Research on victims of

prior hurricanes found that psychological distress and psychiatric symptoms tended to be highest among the poor and those without strong support networks (Bourque, Siegel, Kano, & Wood, 2006). Thus, it would be expected that those students displaced by the hurricanes, and removed from their usual support networks, would be in need of mental health services in the schools.

In April 2006, mental health practitioners serving the remaining SBHCs in Louisiana were surveyed regarding the mental and behavioral health conditions seen in their clinics and the needs of students, particularly as they related to the influx of students from hurricane-ravaged areas. In this article, we report on the responses provided by these practitioners and comment on the needs observed.

Method

Participants

After the hurricanes, 6 of Louisiana's 55 SBHC sites were unable to reopen. One SBHC MHP was on medical leave, bringing the total SBHCs providing mental health services to 48. There were 43 MHPs serving these centers. Each was invited to participate in a survey regarding the mental and behavioral health conditions and needs of students, particularly as they related to the influx of students from hurricane-ravaged areas.

Procedure

In early 2006, Tulane Preventive Medicine residents rotating through the Adolescent School Health Initiative of the Louisiana Office of Public Health, together with staff from Operation Assist of the Children's Health Fund and National Center for Disaster Preparedness at Columbia University's Mailman School of Public Health, designed a survey instrument to assess the impact of Hurricanes Katrina and Rita on students and mental and behavioral health needs of MHPs in Louisiana SBHCs. In April 2006, this instrument was administered to each MHP in the SBHCs that remained open, under the auspices of the Adolescent School Health Initiative. Participation in the survey was requested but remained voluntary, with no consequences in refusing to participate. Individual answers were kept confidential. The survey comprised 17 questions. Question formats included open responses, multiple choice, yes/no, and Likert-type scales. The questions asked about school name, grades served, and changes in student population following the hurricanes. Respondents were asked to rate the relative importance of seven specific behavioral health conditions (depression, adjustment disorder, suicidal ideation, substance abuse, anxiety, hopelessness, and posttraumatic stress disorder) that might be observed among students in their school, using a 3-point Likert-type scale in which 1 = minimal, 2 = moderate, and 3 = high importance during each of three time periods: baseline (pre-hurricanes, before August 2005), early post-hurricanes (September–December 2005), and late post-hurricanes (January–April 2006). This model was also intended to capture changes in utilization of services for these conditions over time. Other questions focused on the availability of resources to handle the current level of clinical needs at SBHCs and training needs for SBHC staff.

Results

Questionnaire responses were collected over a 3-week period in April 2006 from 42 of the 43 SBHC staff members, for a response rate of 98%. The survey results present information on the make up of the student body at the schools, frequency data on mental health complaints, and changes in presenting behavioral and mental health complaints from baseline to the first 4 months and 5 to 8 months following the hurricanes. The information gathered depicts the MHPs' self-perceived level of preparedness for handling needs presented by students and highlights requests for additional training and resources.

There were approximately 37,000 students in the surveyed schools representing all grade levels (K–12). Most of the schools in the survey had a total student body between 500 and 800 students; however, a few large schools raised the mean number of students per school to 937. About 4,500 (12%) of the students in the surveyed schools had been displaced by the hurricanes. All 42 responding SBHCs had some displaced students, but the majority of the displaced students (75%) were in one third of the schools.

Schools in the survey were divided into categories of high or low displacement rates, with high displacement schools defined as having either 100 students or greater than 10% of the total student body displaced. Nineteen schools were categorized as a site of high displacement, and 23 other schools were categorized as low displacement schools. Sixty-two percent of respondents noted that the impact of the hurricanes on student needs was either moderate (43%) or severe (19%). This included about half of the low displacement schools and three quarters of the high displacement schools.

Fifty-three percent of SBHCs reported an increase in patient volume since the hurricanes. Of those reporting an increase, 18% reported that patient volumes had increased "a great deal." Since the hurricanes, respondents reported an increase in problem behaviors among students served by SBHCs. One half to three quarters of all sites noted an increase overall in student verbal arguments (76%), physical fights (64%), and truancy (55%). One third to one half of all sites also witnessed an increase in sexual promiscuity (31%), behavior consistent with conduct disorder (43%), and reported parental conflict (36%; see Figure 1).

In the immediate post-hurricane period, the perceived prevalence of each of the seven conditions increased. All of these conditions had been more prevalent at the baseline in the schools that received the majority of the hurricane-displaced students. Although rates increased in both high and low displacement schools, the amount of increase was much higher in schools receiving the majority of displaced students (see Figures 2 and 3).

The greatest degrees of increase relative to baseline were reported for anxiety and adjustment problems, followed by depression. The conditions that were reported with the lowest baseline prevalence (substance abuse and suicidal ideation) either remained stable or increased in the later period, suggesting that these less common conditions were becoming more important over time.

Respondents also identified increased family disruption and domestic conflicts following the hurricanes. Adjustment problems were associated with poor attention to academics, lateness, sleeping in class, and uncooperative behavior with teachers. MHPs also noted that adjustment issues increasingly manifested as peer conflict, aggressive behavior, truancy, and high-risk behaviors such as sexual promiscuity and substance abuse. Emotional responses, particularly anger and grief, were also common. Somatic symptoms were frequently reported, including hypersomnia, insomnia, nonspecific headaches, and stomachaches. Finally, peer conflict between local students and evacuees was described as common. All of these problems were reported as more prevalent in schools with the majority of displaced students.
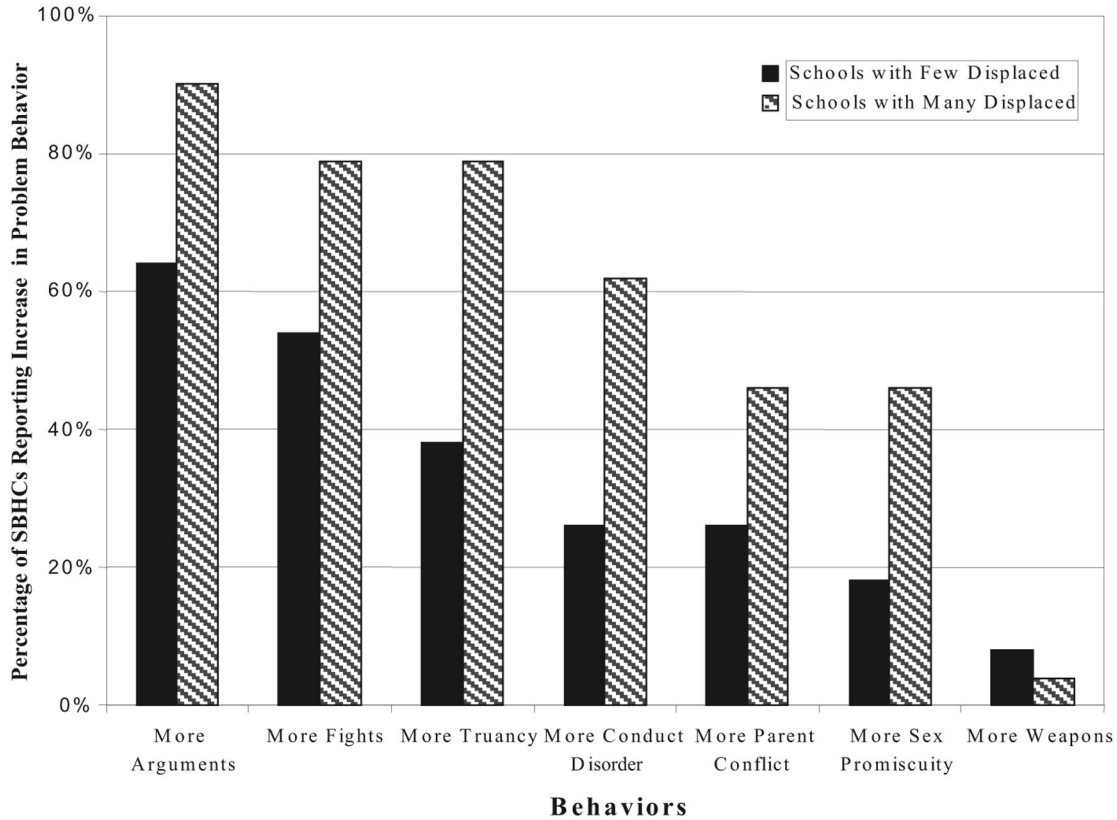
Figure 1. Differences in percentages of negative student behaviors in schools with few and many displaced students. SBHC = school-based health center.

Resource and Training Needs

Immediately following the hurricanes, MHPs reported that they were unprepared, like most school personnel, to respond to the basic needs of displaced families, such as helping them locate housing, food, and financial resources. They also reported feeling ill equipped for the increased volume of students needing services. Overall, the specific needs and concerns discussed below were reported much more frequently by high displacement schools.

Two thirds of respondents reported lacking an adequate number of providers to meet increased demand, including psychiatrists, psychologists, social workers or licensed professional counselors, and substance abuse counselors. About half of the participants also identified a need for increased access to community-based resources to which referrals could be made for acute (55%) and chronic (48%) conditions.

Fifty percent of respondents also reported a need for educational materials to use with students and families on such topics as teen pregnancy, managing anxiety, and promoting adjustment and coping. MHPs also reported a need for additional training to respond appropriately to manifestations of posttraumatic stress, including anxiety and adjustment problems. Finally, 50% of respondents requested additional training on interventions, including evidence-based practices and specific techniques such as play therapy and art therapy.

Many schools attempted to respond to the unprecedented stressors imposed by hurricane-related displacement. Fourteen (33%) of reporting MHPs knew that their schools held workshops to prepare teachers and staff to deal with student adjustment needs. Ten sites reported having workshops for displaced families, and seven had sessions for the local community. However, only three MHPs (7%) knew of their schools holding training sessions for their security staff on dealing with the behavior problems presented by displaced students.

Limitations of the Study

The study has important limitations. Data presented are retrospective impressions of clinicians and, as such, may be subject to recall bias and inaccuracies. The study was a pilot investigation, carried out in the midst of an emergency response to one of the largest disasters in United States history. The survey used was meant to provide a snapshot of the needs of students and MHPs prior to the end of the school year; thus, there was no time to validate the instrument. In the absence of data from previous years, it is not possible to attribute all of the reported changes to the impact of the hurricanes, as opposed to, for example, changes that might otherwise occur during the course of the school year. Changes that were reported could not be confirmed, as there was no opportunity to gather baseline data prior to Katrina–Rita related displacement.

Discussion

The President's New Freedom Commission Report (The Carter Center, 2003) suggested that community-based child and adoles-
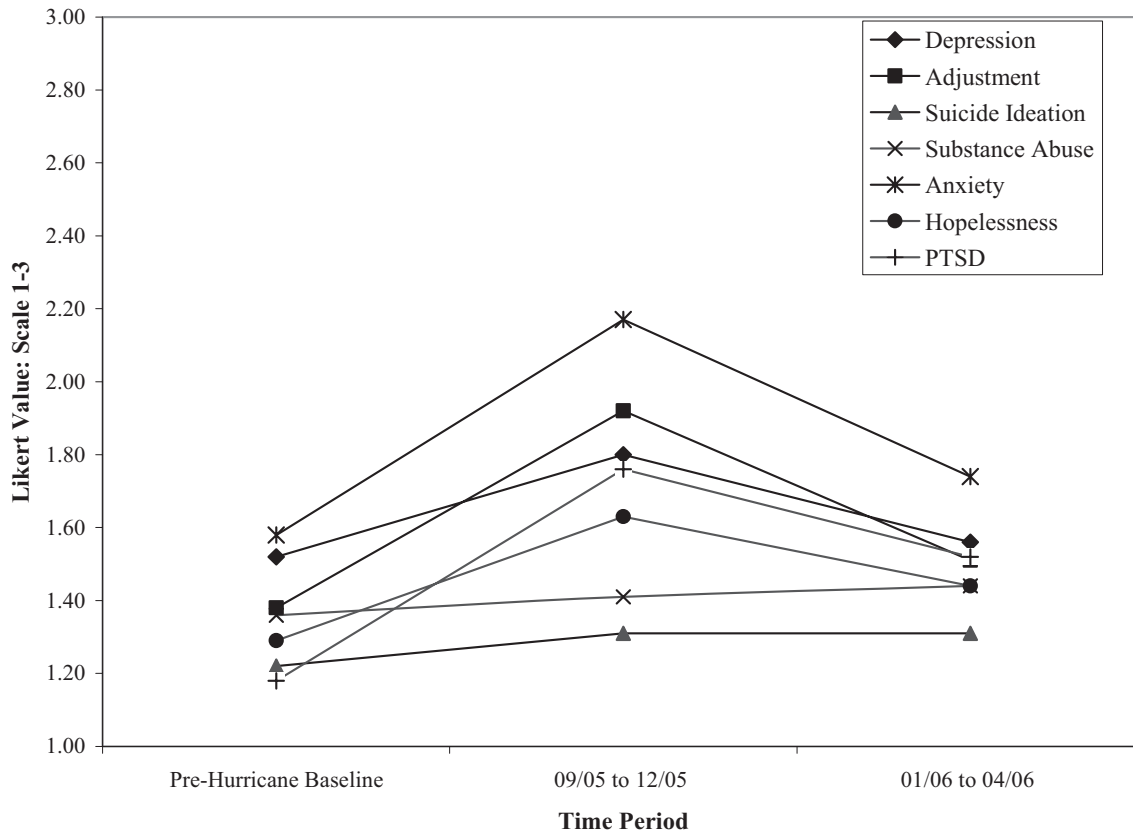
Figure 2. Importance of mental health conditions in schools with few displaced students at three time points: pre-Hurricane Katrina, 1–4 months post-hurricanes, and 5–8 months post-hurricanes. Importance was rated on a 3-point scale (1 = *minimal*, 2 = *moderate*, and 3 = *high importance*). PTSD = posttraumatic stress disorder.

cent mental health services remain marginalized. Despite efforts to increase access to mental health services by implementing the use of mental health professionals in SBHCs, mental health services in many schools lack sufficient staff and resources to meet the needs of underserved students (Taylor & Adelman, 2000).

These survey data from Louisiana highlight the need for mental health services and additional training for mental health professionals in Louisiana SBHCs and possibly other hurricane-affected states. Prior to the hurricanes of 2005, the Louisiana Office of Public Health identified mental health, substance abuse, and primary medical care services as the top needs for Louisiana's youth, and mental health needs were the second most common reason for visits to SBHCs. As the current survey data show, this need has increased.

Fortunately, as of this writing, the SBHCs in Louisiana have received additional resources since Hurricanes Katrina and Rita. The Louisiana Office of Public Health was allocated an additional $1.6 million of state monies, the 2006 Louisiana State Legislature allocated $2.9 million to the state Medicaid program to reimburse for mental health services in SBHCs, and the Kellogg Foundation has provided $1 million to SBHCs statewide and $8.7 million for SBHCs in metro New Orleans (Stay Healthy! Louisiana, 2006).

Although the above sources of funding can significantly improve health care delivery via SBHCs and provide funding for needed resources, the results of this survey provide directions that are crucial for several reasons. First, the need for additional training and contin-

ued support are essential for SBHCs, particularly in mental health services. Second, additional staff support is needed when children's and adolescents' behavioral and psychological problems escalate, particularly in the setting of a mass disaster. Furthermore, additional training for school staff, including teachers and security personnel, is needed for appropriate school-wide responses to changes in students' needs following a disaster. Finally, because school-based services are often provided with less parent contact than in other community-based settings, additional training to work with families and meet concrete family needs is warranted.

Academic success is an important hallmark of children's sense of competence (Masten & Curtis, 2000). SBHCs that engage in consultation with teachers and parents can effectively enhance children's mental health (Lowie, Lever, Ambrose, Tager, & Hill, 2003; McKay, Atkins, Hawkins, Brown, & Lynn, 2003). Consultation with teachers is likely to maximize opportunities to affect children's academic learning and classroom behavior (Ringeisen, Henderson, & Hoagwood, 2003), while consultation with parents, and increased parental involvement in children's schooling, is associated with improvements in reading (Henderson & Berla, 1994) and improved behavior in the home and school (Ringeisen et al., 2003). Providing for the mental health needs of students is part of promoting academic success.

The growth of school-based mental health services provides an opportunity to increase the presence of psychologists in the
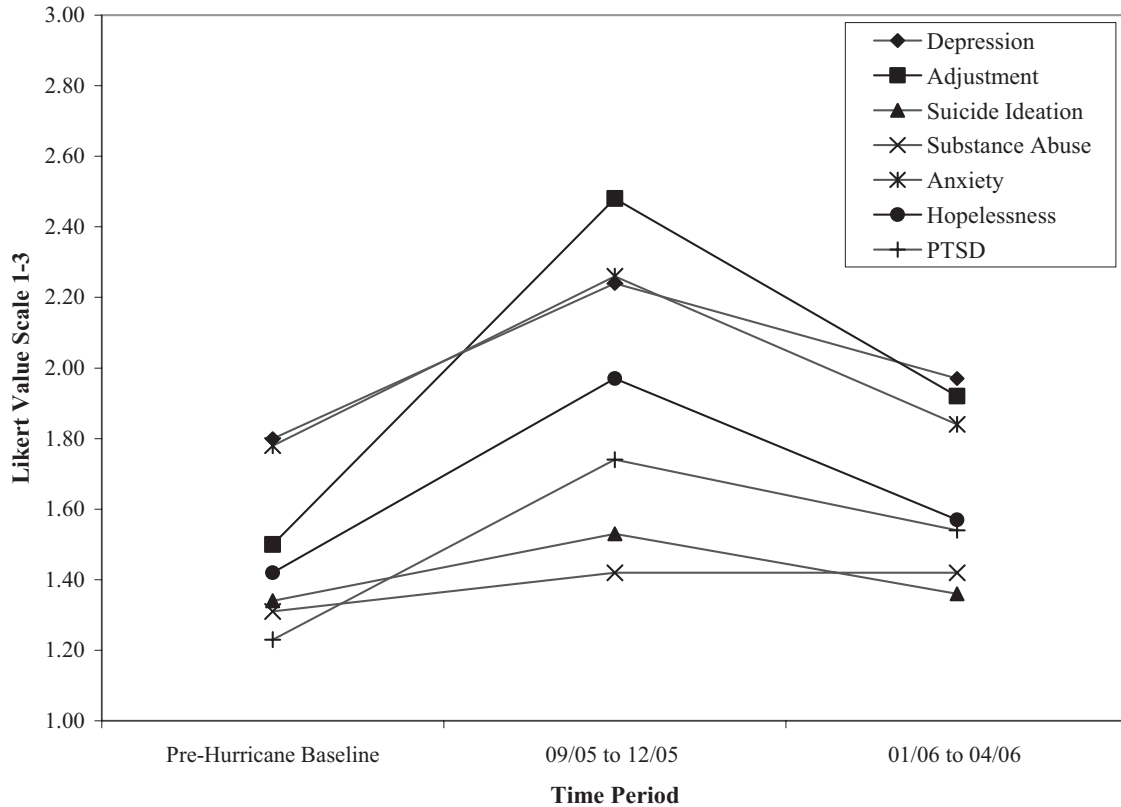
Figure 3. Importance of mental health conditions in schools with many displaced students at three time points: pre-Hurricane Katrina, 1–4 months post-hurricanes, and 5–8 months post-hurricanes. Importance was rated on a 3-point scale (1 = *minimal*, 2 = *moderate*, and 3 = *high importance*). PTSD = posttraumatic stress disorder.

schools. Professional psychology training often includes clinical skills necessary for diagnosis and treatment of high-risk children and youth, including trauma assessment and intervention. Independent practitioners may serve as referral resources for specialized testing and assessment, as well as training and supervision of SBHC staff. The research skills often included in psychology training may prove useful in documenting clinical outcomes and perhaps establishing best practices. In an environment of scarce resources, programs that can become self-sustaining through reimbursement are most likely to achieve the longevity necessary to become a stable part of their community's service infrastructure. Although the details vary from state to state, licensed psychologists are the non-medically trained mental health professionals who are most likely to be credentialed for direct Medicaid billing.

Conclusion

Following a natural disaster, an increase in child mental health needs is likely to occur, as was the case following Hurricanes Katrina and Rita in Louisiana and elsewhere along the Gulf Coast. An adequate health and mental infrastructure, with sufficient capacity to meet existing needs and the ability to expand as new needs emerge, is integral to effective community emergency preparedness. Schools and SBHCs may play a key role as part of the community's service infrastructure and as first-line responders

following a disaster. This occurred in Louisiana following the hurricanes, as vulnerable, high-risk children and youth reacted to the multiple stressors of a large-scale natural disaster, including evacuation and relocation.

In the aftermath of the hurricanes, stress reactions, including increased disruptive behavior, anxiety, and school adjustment, were prominent, especially among those who had to relocate. Many critical psychosocial needs affected families, including access to food, shelter, and income. School staff, including psychologists and other mental health professionals, required additional training to meet those needs and intervene effectively for posttraumatic stress reactions. Ensuring that schools and SBHCs have sufficient resources and adequately trained staff is integral to comprehensive disaster preparedness. Psychologists have an important role to play in providing technical support to other mental health professionals, assessing mental status, and providing interventions following a disaster.

Although the degree of increase in problem behaviors consistent with posttraumatic stress reactions diminished somewhat over time, the level of need for intervention persisted well after the hurricane season. This indicates that expanded mental health services following a disaster need to be sustained over time.

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