

Management of Trauma in Special Populations After a Disaster

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Special populations are particularly vulnerable to mental health problems in the aftermath of a disaster. Efficient delivery of mental health services, the integrated use of psychosocial services and mental health facilities, and the active intervention of trained community health care workers can offer effective management of the psychosocial problems of special populations. Women, children, adolescents, the poor, the elderly, and individuals with preexisting health problems have been identified as special populations who often suffer psychological morbidity as a result of a catastrophic disaster. Understanding the cultural, ethnic, and socioeconomic factors in a postdisaster situation is crucial to helping special populations overcome debilitating mental illness and declining quality of life. Planning the delivery of mental health services is critical and includes hazard mapping to identify vulnerable geographic and social areas, screening instruments to identify at-risk populations, and education of community leaders and health care workers. An integrated approach using psychosocial and institutionalized interventions can provide better outcomes than either approach alone. A community-based approach with trained grassroots health care workers can provide effective psychosocial support and rehabilitation services.

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The human impact of mass disaster is a composite of 2 elements: the catastrophic event itself and the vulnerability of those people affected by the event.¹ The extent and severity of injury, bereavement, damage to property and infrastructure, loss of livelihood, and loss of community all seen in the aftermath of a disaster are determined by the nature and severity of the disaster itself. Whereas the casual observer will make an assessment of impact based on these disaster manifestations as they affect the entire population, human vulnerabilities unique to special populations are often ill perceived due to the common misapprehension that disasters are the great equalizer in any society. Thus, while the severity of exposure may indicate the likely mental health impact on the entire affected population,² it is necessary to consider special populations within the postdisaster environment in order to identify those individuals who are most vulnerable to a long-term decline in health and quality of life and who are

at greatest risk for the development of specific syndromes relevant to mental well-being.³ Such vulnerabilities are not merely a function of severity of exposure to mass trauma but are also constructed out of the social and economic circumstances of everyday living.^{4,5}

While there is little to corroborate that the impact of a disaster is undifferentiated across demographic groups, there is evidence to suggest that underlying economic and social relationships can increase human vulnerability not only during a disaster but also in the immediate aftermath and in the long-term postdisaster environment.^{6,7} Any mental health program set up to identify and treat victims of disaster should, therefore, target not only areas of greatest exposure and loss but also areas of greatest need.

Women and children are special groups considered uniquely vulnerable in the context of disaster, collectively accounting for more than 75% of displaced persons.⁸ Women and children are at increased risk of morbidity and mortality, are underrepresented in terms of disaster rehabilitation, and are likely to have mental illness or psychosocial disorders neglected as outcomes of disaster.¹ While there are other special populations to consider, women in particular play a central role within the family unit that is magnified in the event of a disaster, yet often ignored during relief efforts.⁸ It is, therefore, imperative that any disaster preparedness planning and postdisaster relief efforts are explored through a “gender lens” to ensure that vulnerabilities are adequately mitigated.

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The axiom of “women and children first” is routinely overlooked in disaster preparedness⁹ and is therefore given precedence in the current review. However, it is important to consider the context of any disaster to appreciate that vulnerabilities are neither transparent nor immutable. Thus, dependent on the circumstances of a particular disaster, men may constitute a special population, as was the case in Sri Lanka after the recent Asian tsunami. Other special populations include the elderly, the impoverished, ethnic minorities, class and caste groups, the poor, injured victims, those with preexisting psychiatric disorders or traumatization, and health care or relief workers exposed to the effects of mass trauma.^{4,10–13}

To effectively target scarce resources aimed at mitigating the mental health consequences of mass trauma, the disaster practitioner needs to be aware not only of gender patterns and vulnerability maps⁴ but also of local customs and culture. Lack of awareness may serve as a barrier to a successful outcome. Moreover, those individuals and groups involved in the provision of mental health services need to optimize and maximize the use of all available resources that can be found within affected communities to be able to meet the goal of mental well-being for all victims of disaster.

WHO ARE THE VULNERABLE IN THE AFTERMATH OF DISASTER?

Gender as a Factor in Disaster Vulnerability

Epidemiologic studies, of both postdisaster cohorts and the general population, suggest that women are more likely than men to experience mental health problems as a result of mass trauma.^{14–16} Whereas lifetime prevalence of exposure to traumatic events appears to be similar for men and women, the prevalence of posttraumatic stress disorder (PTSD) in the general population is reported to be approximately 2-fold greater in women than men.^{17,18} Similarly, studies among disaster survivors are consistent in their demonstration that psychiatric disorders such as *ataques de nervios* (nervous attacks), depression, somatoform disorders, and PTSD are more prevalent in women than men.^{19–22}

There is a lack of data to adequately explain gender differences in vulnerability, but the general pattern of gender differentiation is apparent at all levels in the disaster setting. Thus, women not only suffer a disproportionate psychological impact compared with men but also have a greater exposure to risk arising from both biological and social factors, increased difficulty accessing relief services, more dire social and economic consequences, and a lesser role in disaster preparedness, relief, recovery, and reconstruction.²³

Both biological and social factors are determinants of vulnerability in women. Adverse reproductive outcomes in women following disaster include miscarriage, prema-

ture delivery, stillbirth, delivery-related complications, and infertility.²³ In the aftermath of the Asian tsunami, the specific needs of women to enable their active participation in clean-up, recovery, and rebuilding efforts were identified as being the provision of sanitary supplies, privacy to ensure correct and safe use of those supplies, and replacement clothing to allow women to go out in public.²⁴ Similarly, gender role socialization is an important differentiator in any vulnerability assessment. Socially constructed gender roles often determine that women assume primary responsibility for others affected by disaster, including children, the sick and injured, and the elderly, thereby substantially increasing their emotional and material burden.⁸ Thus, women’s expanded caregiving roles and placing family needs before their own may contribute to an overall decline in emotional well-being. Furthermore, in addition to trauma that is uniformly associated with the loss of loved ones, women may be disproportionately exposed to financial hardship with the loss of a spouse and sole breadwinner.

Men, on the other hand, also may be disadvantaged by their gender roles but for different reasons from those for women.²³ As family providers and protectors, men may experience feelings of inadequacy and failure in the aftermath of a disaster that has claimed their means to provide and protect. Men also may take greater risks after a disaster, such as during any rescue and recovery efforts, exposing them to potential injury, illness, and death. However, estimates of the fatality rates after the recent Asian tsunami indicated that women were disproportionately represented among those killed, leaving the men to look after surviving family members. Whereas social and cultural customs may help prevent substance abuse for women, many men have easier access both materially and culturally to potentially abused substances. Two weeks after the tsunami, the widowed men were considered new victims; not accustomed to their emerging roles, many developed an alcohol dependency and some became suicidal. Whereas a disaster situation might typically require focusing resources on women and children, these examples demonstrate the importance of not overlooking the needs of men.

The association between gender and disaster vulnerability may not be limited to adults. Significant differences in the frequency of postdisaster stress and psychological disorders among adult male and female disaster survivors have also been observed among children and adolescents, with women and girls twice as likely to develop PTSD as men and boys.² While excess risk among females appears to relate more to subjective interpretation of events rather than objective exposure to disaster stressors, some females may be particularly at risk, such as those who are impoverished, those who belong to ethnic minority populations, those who have chronic disabilities or other health problems, those who lack family and com-

munity support, widows, and those with insufficient security and privacy in shelters and camps.⁸

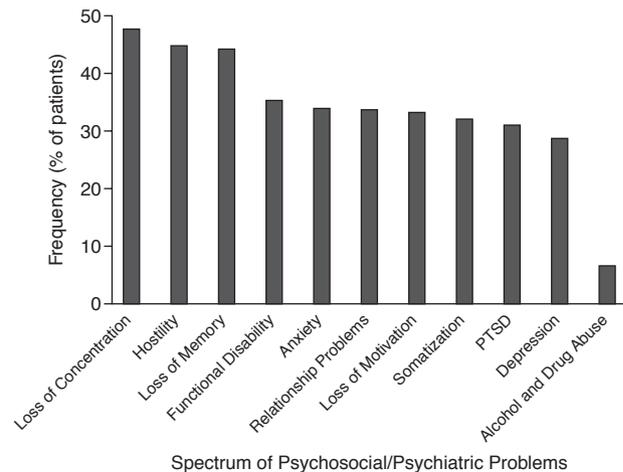
Children and Adolescents

Although comparison of psychiatric responses by adult and child survivors of disaster is complicated by the tendency among researchers to consider these groups separately, disaster cohorts comprising children or adolescents are more likely in the long term to demonstrate severe impairment than adult cohorts.² Older children's responses to major stress are similar to those of adults, with characteristics of reexperiencing the event, avoidance, and arousal²⁵; but, after a disaster, children will often demonstrate a modified sense of reality, increased vulnerability to future stress, an altered sense of the power of self, and early awareness of fragmentation and death.²⁶ These factors may impact the emergence of a child's personality and lead to "after-trauma" in later life if children are unable to make necessary adaptations or receive help to deal with the initial trauma. Children exposed to trauma may experience developmental delays; problems with reading, comprehension, and abstraction; and low self-esteem.²⁷

Children commonly suffer disturbances in emotion and/or behavior when under stress, with disturbances in sleep with nightmares and night terrors widely prevalent following traumatic incidents.²⁸ One unpublished study of the psychological consequences of traumatic stress in school-aged children under age 12 years reported the following common symptoms and their frequencies. In a war milieu, such as in Northern Sri Lanka, children are exposed to terrifying experiences, such as sudden shock; dreadful noises of explosions; threat to life; witnessing the death or injury of family members; assaults and destruction of home, school, and other institutions; displacement from familiar surroundings; loss of property; death and injury to domestic animals and pets; and seeing dismembered mutilated bodies, raw flesh, and blood. They often grow up in such a milieu, knowing no other world. In Sri Lanka, these experiences have led to sleep disturbance (77%), irritability (73%), decline in school performance (60%), hyperalertness (50%), aggressiveness (46%), clinginess (45%), antisocial behavior (44%), sadness (43%), separation anxiety (40%), cruelty (30%), and withdrawal (25%) (T. Arunakirinathan, B.A.; A. Sasikanthan, M.B.B.S.; R. Sivashankar, M.B.B.S.; et al.; unpublished data; August 1993).

Children may show very little in the way of psychological response in the immediate aftermath of a disaster due to their limited conceptualization of traumatic events, but in a relatively short time they may acquire severe psychological symptoms. A survey of children from Vadamarachi in Northern Sri Lanka taken 3 weeks after the recent Asian tsunami found that of 71 children aged 7 to 15 years who had been relocated to a displaced per-

Figure 1. Psychosocial Problems in Adolescents Involved in Disaster^a



^aReproduced with permission from M. G. Geevathasan, M.B.B.S.; D.J.S.; and S. V. Parameshwaran, Ph.D., unpublished data, August 1993 and S. Sivashanmugarajah, M.D.; S. Kalaivany, B.A.; and D.J.S., unpublished data, August 1994. Abbreviation: PTSD = posttraumatic stress disorder.

sons' camp, all exhibited psychological symptoms, including severe numbing on the previously validated Tamil version of the UCLA PTSD Index for DSM-IV.²⁹ In addition, 29 children (41%) met the criteria for PTSD, with the exception of 4 weeks' duration at the time of assessment. Although PTSD is the most common psychiatric disorder in children, non-PTSD disorders characterized by mood, anxiety, sleep disturbance, behavioral problems, and learning and attention-deficit problems are also common.²⁵ Major factors contributing to impairment include the child's developmental level, perceptions about the response to trauma of family members, and direct exposure to the disaster.²⁶

Adolescence is a critical period of transition to adulthood when childhood developmental stages and identity formation come to a climax.²⁸ Figure 1 shows the spectrum of psychosocial problems found among adolescents who have been exposed to trauma arising due to war (M. G. Geevathasan, M.B.B.S.; D.J.S.; S. V. Parameshwaran, Ph.D.; unpublished data; August 1993 and S. Sivashanmugarajah, M.D.; S. Kalaivany, B.A.; D.J.S.; unpublished data; August 1994). Adolescents in North Sri Lanka have grown up in a chronic civil war situation in which arbitrary detention, torture, massacres, extrajudicial killings, disappearances, rape, forced displacements, bombings, and shelling are common, as are witnessing the death or injury of their family members, destruction of social structures, and disturbances to education. Symptoms of concentration loss, hostility, loss of memory, and functional disability are relatively common in this group, while around 30% of adolescents will de-

velop serious psychiatric conditions such as PTSD and depression. The symptoms of cognitive impairment are particularly worrying in this group and can lead to the erosion of identity and increased risk of militancy, migration, and simply dropping out of school.

Adolescents are particularly vulnerable during this impressionable formative period, and traumatic events during this time can cause permanent scarring of their developing personalities. It is likely that exposure of children during their formative years to insecurity, hopelessness, and violent deaths of loved ones, as well as other cruel and aggressive action and the full paraphernalia of war and its instruments of destruction, will permanently influence their development. Indications of this influence are seen in the plethora of war toys and games with which children in violent settings are so fond of playing and in their daily vocabulary. Brutalization of their personality development becomes inevitable.

Younger children's reactions must be understood within the context of the family. Their reactions are a function of the way in which reality filters down to them, so that they mirror their parents' reactions rather than directly relating to the event. The major fear at all ages is separation from parents. If this does not occur, and if the parents cope with the situation, children show little awareness of danger and minimal anxiety. However, if the parents react with fear and anxiety or lose control and discipline or if the child's regular and ordered world is changed frequently or the parents themselves are missing, the child will commonly present with disturbance in physical function (such as enuresis and functional diarrhea), emotion (such as crying spells and withdrawal), or behavior (such as clinging and temper tantrums).

Although there are a large number of agencies with influence in providing support to young children in the disaster setting, support services for adolescents may not always be addressed as effectively. After the recent Asian tsunami, schoolteachers in Sri Lanka were instrumental in implementing the psychosocial interventions of various aid agencies. In a country that used to place considerable significance on education, the effects of the war and the more recent natural disaster caused repeated disturbances in the education system and lack of access to advancement through education. As a result, skepticism about their future soon developed among many adolescents, who dropped out of school to assist their parents and look after younger children. Adolescents in these situations pose an at-risk group for substance abuse disorders, suicide, and exploitation for religious, political, or militant purposes.³⁰

Other Vulnerable Populations

Disasters have their greatest impact in underdeveloped regions in which there are few alternatives for re-

sources that are destroyed or already scarce when mass trauma occurs. In this regard, there is a clear relationship between poverty, marginalization, overpopulation, and vulnerability, with the poor being more likely to live in areas that are geographically vulnerable or lacking in sustainable agriculture, more prone to malnutrition and chronic illnesses, and less likely to have access to adequate information and education.¹⁰ Involuntary migration as a potential consequence of disaster may further expose such individuals to impoverishment and marginalization.⁵

Socioeconomic hardship is a factor in mental health risk. Of 102 adults of low socioeconomic status forced to live in tent camps some 8 months after a major disaster, 91% of those identified by a screening instrument as being emotionally distressed met the criteria for a psychiatric disorder, with the most common diagnoses being PTSD and depression.⁷ To place this finding in perspective, living in a developed country when disaster occurs appears to mitigate the impact of trauma exposure, with fewer disaster cohorts from developed countries demonstrating severe mental health impairment compared with those of developing countries.²

Ethnic minorities, the elderly, and those individuals with preexisting disablement or health problems are also recognized in the literature as having an increased risk for mental health impairment in the event of a disaster.^{2,4,11,12} While ethnic differences in psychological impairment may be explained by other risk factors such as socioeconomic status, chronic adversity, and differential exposure to disaster, Norris and Alegria¹¹ have reported that ethnicity and culture influence an individual's perception on need for help, on availability and accessibility of help, on help-seeking comfort, and on the probability that help is provided adequately. Moreover, marginalized groups such as ethnic minorities and deprived class and caste groups are often excluded from disaster planning initiatives with the result that response programs do not have a solid basis for understanding and reacting to the cultural differences that are a part of most societies.⁴

Debate continues as to whether elderly people react similarly to traumatic events compared with younger age groups or are more vulnerable to such events. However, it is likely that vulnerability in the elderly is related more to preexisting health than to age per se, with impaired physical mobility, diminished sensory awareness, and chronic health conditions potentially contributing to a reduced capacity to adapt in the disaster setting.³¹ One study of 148 community residents exposed to 2 separate disaster events found there was no difference in posttraumatic responses in young, middle-aged, and elderly age groups, with level of intrusive thoughts and avoidance behavior determining health outcomes in the group as a whole.³² However, 2 other disaster cohorts of older adults found that middle-aged people were at an increased risk of psychological symptoms compared with the entire sample.^{33,34}

The relationship between preexisting health status and vulnerability in the disaster setting is not just a function of age but is consistently demonstrated across the entire population. Thus, individuals with previous psychiatric illness, family history of mental illness, childhood adversity, moderate physical disabilities, or poor general health have an increased risk for an adverse outcome in the event of disaster.^{2,6,15,19,22}

Finally, those individuals who receive injuries, who are witnesses to others' injuries, or who are involved in providing relief or health care in the event of disaster are at an increased risk for psychological morbidity.^{12,13,35} With respect to health care workers exposed to disaster, serious psychiatric sequelae are related to education level, the types of injuries being treated, stressful life events in the postdisaster period, and emotional numbness immediately after the disaster.¹³ In this regard, ongoing support for health care workers is an important consideration in disaster planning and response.

MANAGING TRAUMA IN SPECIAL POPULATIONS

Issues in Planning and Delivery of Mental Health Services

Activities such as hazard mapping and vulnerability and capacity analyses are critical aspects of effective disaster preparedness and response.^{4,23} The intention of hazard mapping is to build disaster-resistant communities by identifying areas of not only geographic vulnerability but also social vulnerability. Thus, hazard mapping should be used to identify focal points that deserve particular attention following disasters. Essential community resources, such as schools, hospitals, places of worship, shelters, community halls, and local service groups, that are likely to be helpful in responding to a disaster should be well known. A community vulnerability inventory should be included to pinpoint local concentrations of at-risk groups,⁴ which can then be used to direct services and resources to those with the greatest needs. Capacity analysis identifies those individuals and groups that are able to be mobilized in the event of a disaster, such as primary health care workers, community and social workers, nongovernmental organizations, and those with specific training in responding to disasters.

Disaster mitigation and response activities need to incorporate a gender strategy in order to take into account the unique vulnerabilities of women and children and to reflect the fact that women's and men's social roles can differentially affect the provision of relief services and recovery efforts.²³ Whereas men may typically be engaged in rescue, recovery, and redevelopment activities, women assume the nurturing role of putting lives back together, securing relief supplies and services, meeting the immediate survival needs of family members, and managing relocation when it is necessary.^{8,23} However, cultural norms

may inhibit or prevent women from accessing relief centers, interacting with male members of their communities who are not their kin, or assuming the status of household head in order to receive relief supplies. Women's safety and legal rights may be compromised in the postdisaster setting, and their time and labor in the provision of care to others may be taken for granted.²³ Whereas women are often portrayed as victims of disaster, their magnified responsibilities after the onset of disaster are largely ignored, with a consequent deficit in assistance to women through support networks and targeted resources.⁸

By incorporating gender issues and representing women's needs, views, and coping strategies into disaster planning and management, scarce resources can be more effectively focused. This planning may require the generation of sex-disaggregated data for community vulnerability and capacity assessments; identification of women who are marginalized and at risk, including impoverished women, women belonging to racial and ethnic minorities, those with chronic disabilities or health problems, women subject to domestic violence and abuse, and those forced to seek refuge in shelters in which security and privacy may be inadequate; and engagement of women as equal partners in community-based disaster mitigation, planning,⁸ and psychosocial interventions.

Identification of at-risk groups may be facilitated using simple screening instruments designed to detect significant emotional stress. Short self-rated screening instruments for PTSD that may be adapted for easy use in the field include the Trauma Screening Questionnaire³⁶ and the SPAN.³⁷ Please also see Connor et al. in this supplement for an in-depth discussion. The particular screening method adopted should reflect that the most frequent psychiatric diagnoses are likely to be PTSD and depression. In this regard, Lima et al.⁷ have reported that the narrow range of psychiatric disorders detected among victims of disaster makes it possible to circumscribe the training of the primary health care support worker in disaster mental health to these priority conditions. However, the wide range of other psychosocial problems that arise after a disaster should also be assessed. Narrow psychiatric screening may miss the more prevalent problems that people face. Focus group discussions, snowballing, and qualitative and active participation may be other ways to find out who may be affected. Identification of children who need mental health treatment may be complicated by dampened behavioral response or by decreased parental sensitivity to children's behavioral issues.³⁸

Importantly, traumatized individuals are typically resistant to seeking treatment, so treatment must be taken to disaster victims within their affected communities.¹² Further, instead of concentrating on individual "treatment," it would be more prudent to use public mental health promotional activity as well as community approaches. Providing training and support to mental health workers already

in the affected communities is an effective method of reaching disaster victims.³⁹ Effective measures include educating community leaders in “psychological first aid,” emotional support, information provision, and recognition of persons requiring primary health care referral; training grassroots and primary health care workers in basic mental health care knowledge and skills; and training community workers to assist primary health care workers with heavy case loads.⁴⁰

Basic Principles in Disaster Management

Victims of disaster typically define their problems in terms of loss of loved ones, loss of home and income, and loss of communality, as well as the frightening experience they have been through.⁴¹ In implementing psychosocial programs to address this loss, it is important that participants are encouraged to set goals for their participation, and any interventions should be aimed at helping people to recognize the options they still have rather than allowing them to focus only on their problems.

Health care providers need to be educated in terms of (1) understanding local idioms of distress and help-seeking behaviors; (2) identifying local mental health priorities; (3) understanding the effects of violence on individuals, families, and communities; (4) understanding the impact of structural violence, which often forms the context in which man-made disasters such as war have their greatest impact; and (5) familiarization with effective intervention strategies.

With regard to local idioms of distress, people of different cultures can be expected to express fear, psychological stress, and social problems in quite different ways. For example, in war-torn Cambodia and Sri Lanka, people presenting with psychological distress would often complain of headaches and breathing difficulty, respectively. This example demonstrates a need for health care workers to become educated in the expressions used by communities to communicate their distress. A person’s cultural attachments may lead him or her to seek help from a traditional healer who, rather than recognizing psychological morbidity in terms of Western theories of causality, may instead view a person’s problems in terms of his or her past conduct. This traditional help-seeking behavior and the resulting helping strategy need to be understood on a cultural basis and accommodated since more conventional methods of mental health intervention may not be viewed with the same acceptance. As Austin and Godleski¹² have pointed out, the most important ministrations to a disaster victim may not always be strictly medical. As in warfare, natural disaster may be of such magnitude that the damage extends beyond the individual or family level. The very fabric of society itself may be destroyed. This, in turn, causes the loss of coping mechanisms embedded in social ritual and experience, the very processes that help people find new meaning after disastrous events.

Although the biomedical model of therapy specifies the individual as the critical unit of analysis, factors in a disaster setting that are external to the individual may be relevant to his or her well-being. For example, in many third-world settings, attention may have to be paid to the family unit and its health functioning. The greatest good may in fact come from the progress of the community and its re-development and the psychosocial programs that are directed at a community level toward this end. Mental health professionals are, therefore, advised to put aside their particular methodological and philosophical biases and to focus on the rehabilitation of the community as a whole through the development of community-based interventions. Alternative approaches may include starting support groups for specific survivors, as well as more unorthodox approaches, such as “inventing” new rituals that help people come to terms with the specific traumatic events.⁴²

Management Approaches for Special Groups

A variety of treatment approaches are required for both adult and child victims of trauma.⁴³ Techniques such as group therapy, cognitive and behavioral therapy, and desensitization and relaxation training can help victims of disaster enhance their coping skills and deal more effectively with life events. Group interventions have been found to be effective in promoting catharsis, support, and a sense of identification with others.¹² In particular, for women, groups, such as widows’ groups, are very effective means of organizing individuals to support and help each other.

In the case of children, their resilience and recovery ability is dependent on basic human protective systems operating in their favor.²⁵ Psychosocial workers, teachers, health providers, and others may design, develop, and implement a variety of community-based psychological trauma interventions. These interventions allow those community members most affected by the trauma to play a central role in the resolution of, and community adaptation to, traumatic losses.⁴⁴ Children’s caregivers should be encouraged to convey belief in, and empathy for, their children; provide a forum for discussion of their trauma; and promote coping skills. Beyond this level of intervention, school-based cognitive and behavioral therapy and specialized therapy for severely affected children are warranted.²⁷ In 1 study of children with disaster-related trauma symptoms,⁴⁵ both individual and group treatment provided by trained, school-based counselors were effective at reducing self-reported symptoms, although fewer children dropped out of group therapy.

Structured activity such as playing, drawing, singing, dancing, storytelling, and drama are very useful expressive methods for children as well as for traumatized adults and can be used in a group setting. Traditional relaxation methods such as word repetition (depending on the religion of the person: Hindu mantras, jappa; Catholic ro-

sary or prayer beads; Muslim “thikr”), breathing exercises (Buddhist ana pana sati; Hindu pranayama), and muscular relaxation (shanthi asana) are very powerful cultural techniques to deal with stress and effects of trauma that can be taught to individuals or groups.⁴⁶

Although women tend to suffer disproportionately in every stage of a disaster, women’s needs have yet to be adequately addressed in either disaster research or response.⁴ Clearly, women stand to benefit from basic social interventions, such as efforts to establish physical safety; the ongoing dissemination of reliable information, particularly as it relates to relief activities; the reestablishment of contact with missing or absent relatives; and organization of non-intrusive support and outreach networks.⁴⁰ The woman as head of household and with the burden of responsibility for family members is a common disaster scenario. In many cases, the family home or primary means of shelter is destroyed and key material possessions lost, forcing the family to take refuge in a relief camp. Given this expanded emotional and material burden of many women in the early postdisaster period, therapeutic goals should begin with protecting survivors from excessive stimulation and premature responsibility for decision-making.¹² Assistance with childcare and the provision of essential items such as cooking utensils and clothing, together with adequate shelter and monetary support, may be all that are needed until the woman has had time to come to terms with her loss and is better equipped to deal with the consequences. Survivors should be offered information about the safety of relatives and given emotional support and the means to reestablish networks with family, friends, and other survivors, as well as providers of physical and psychological support.¹²

CHALLENGES IN PROVIDING MENTAL HEALTH CARE AFTER A DISASTER

Optimizing Use of Mental Health Resources

The postdisaster environment necessitates the urgent establishment of psychiatric services for those needing high-level care and the installment of community-based interventions to assist with basic support and screening. Within this environment, psychosocial and institutionalized interventions are interdependent; institutionalized programs cannot hope to reach every individual requiring a psychological intervention, and psychosocial work on its own is ineffective if there are no referral points to assist people with severe psychiatric symptoms.^{39,47} As part of an integrated approach, the 2 types of interventions can produce better outcomes for a greater number of people.

Examples of this integrated approach include the establishment of mental health services in post-civil war Cambodia and the response to the Asian tsunami by Thailand. A community-based approach to mental health was adopted in Cambodia in which grassroots workers were trained so they would be able to address the most basic problems of

mental health in rural villages.³⁹ A referral system to centralized, institutionalized care was established for more serious psychiatric disorders, which was suitably adapted to enable stabilized patients to be referred back to the community for follow-up and support. After the Asian tsunami, the Thai Ministry of Health immediately planned the establishment of a temporary psychiatric clinic in the vicinity of Khao Lak in Phong Nga, one of the hardest hit areas. Subsequently, a large number of Buddhist monks recruited under the “Monks for Moral Recovery” project banner were sent to tsunami-affected areas to assist the local population in dealing with their trauma. The monks in this instance provided a basic counseling service while identifying potential candidates for more formal psychiatric interventions, thereby freeing up clinic resources for only the most needy cases.

Barriers to Effective Recovery

The sociocultural context in which mental health care is provided is an important consideration in the disaster setting, since social and cultural differences may act as barriers to successful outcome. The approach taken by the Ministry of Health in conjunction with Buddhist monks to provide mental health care for tsunami victims in Thailand needed to be sensitive to the local context, since the use of Buddhist monks in Muslim areas of the community, as an example, had the potential to be met with local resistance and thereby act as a barrier to intervention. Given that ethnic minorities may be at increased vulnerability and that culture may influence access to and delivery of mental health care services, ethnicity, culture, and religion, as well as class and caste need to be considered in any service delivery program.^{11,23}

Since disaster planning, management, impact, response, and even research are largely social processes, and as such have evolved over a long history of culturally embedded patriarchy, it is important to deconstruct these processes “through the eyes of women” in order to be able to deliver mental health services that are sensitive to their needs.^{4,23} Cultural norms that may inhibit women from accessing relief centers, prevent them from leaving home due to childcare responsibilities, prevent them from interacting with male members of their community, or contribute to their social isolation and alienation need to be recognized and a solution provided.^{5,23} Disaster mental health programs can be implemented in such a way that they ameliorate barriers that contribute to gender and ethnic disparities in their use by giving greater attention to socially engaged emotions and functioning (many concrete examples may be found in the *World Disasters Report 2001* of the International Federation of Red Cross and Red Crescent Societies).⁴⁸ Health care providers should be encouraged to (1) assess community needs early and often, (2) provide easily accessible services, (3) work collaboratively and proactively to reduce

stigma and mistrust and engage minorities in care, (4) ensure a sizable representation of women among health care workers (i.e., health care providers should encourage women to apply for positions and then select them for training), (5) validate and normalize distress and help-seeking behaviors, (6) value interdependence as well as independence as a developmental goal, (7) promote community action, and (8) advocate for treatment and evaluation research.¹¹ Collaborations with traditional healers should be particularly encouraged, since a working alliance between traditional and allopathic practitioners may help to break down barriers to treatment acceptance and delivery.⁴⁰

Redevelopment of the postdisaster environment may be associated with new hazards, which are accepted by society as a whole due to the perceived benefits, but whose disadvantages or risks are disproportionately realized by special populations.^{4,10} Examples include urban development leading to an influx of low socioeconomic groups with resulting settlement on marginal land or in high-density, poor-quality housing; coastal development with potential exposure to extreme weather conditions; displacement of fishermen and the landless poor from coastal belts ostensibly for their protection while corporate business and the state take over for tourist and other industries, such as happened after the recent tsunami; forestry projects with consequent destabilization of surrounding land; investment in poorly controlled, hazardous industries; and agricultural projects aimed at promoting cash crops with loss of production of staple foods.¹⁰ Therefore, the community should be consulted at all levels during recovery and reconstruction, ensuring that women's views and the views of other special populations are considered and that the special groups themselves are actively engaged with relevant responsibilities in the redevelopment process. Training and education are of critical importance in preventing increased vulnerability as a result of development strategies that continue to marginalize special populations from available resources.

A COMMUNITY-BASED MODEL FOR INTERVENTION

In developing countries, the high prevalence of mental disorders and psychosocial problems among disaster victims far exceeds specialized mental health care resources.⁷ Therefore, the general health sector, particularly at the primary care level, must actively participate in the delivery of services to meet the needs of disaster victims. Psychoeducation campaigns are invaluable in identifying vulnerable groups and will further assist in the tailor-made design of psychosocial, community-based interventions to complement psychiatric services.

Psychoeducation

Psychoeducation campaigns are designed to introduce a basic level of mental health knowledge at different levels within the community. This can be achieved using a mass media approach (e.g., radio, television, newspapers); a more targeted approach involving pamphlets and newsletters for primary health care workers, teachers, and community workers; or a more personal approach such as delivering seminars and workshops for the different groups within a community. In the disaster setting, psychoeducation programs are a means of supporting trauma survivors without impeding their natural recovery by providing accurate information about normal responses and ways to cope.⁴⁹ These programs can also be used to assist community workers in screening for at-risk individuals who would benefit from ongoing support. Moreover, by helping to normalize trauma responses, psychoeducation is an important instrument for reducing any stigma associated with seeking this type of support. An effective way of delivering psychoeducation is ostensibly through other support services, thereby attracting a potentially larger number of participants.

Psychosocial Support

A key aspect of providing psychosocial interventions intended to mitigate the impact of disaster is training of key personnel who will provide counseling, encouragement, motivation, and support for others. Ideally, these personnel would be drawn from all available human resources, such as primary health care workers, teachers, religious leaders, and traditional healers. While operating in a flexible manner to best represent the needs of different community groups, psychosocial workers and service providers should aim to network with all other organizations in the field in order to optimize outcomes. Counseling alone will be insufficient for those people with severe psychological symptoms. Therefore, effective treatment requires an integrative approach with referral to mental health professionals for more severe problems.

Training of grassroots community workers in basic mental health knowledge and skills is the easiest way to reach a large population. In conjunction with their primary role of providing psychosocial support, these workers increase the general awareness of mental health issues, disseminate knowledge, undertake promotional and psychoeducational programs, and contribute to the prevention of serious psychiatric sequelae (Table 1). The majority of minor mental health problems can be managed within the community, with more serious cases referred elsewhere.

To reestablish the mental health infrastructure in Cambodia after decades of civil war, a primary care approach similar to the one advocated here has been adopted.³⁹ Among the grassroots workers trained in a psychosocial capacity have been government ministry staff, nongovern-

Table 1. Community-Based Approaches to Providing Psychosocial Care

Approach
Awareness
Training of community workers
Promoting public mental health activities
Encouraging indigenous coping strategies
Cultural rituals and ceremonies
Community interventions
Family
Groups
Expressive methods
Rehabilitation
Prevention

mental organizations, provincial and district hospital and health clinic primary care staff, village health volunteers, members of village development committees, monks, nuns, teachers, village elders, and traditional birth attendants. Psychosocial interventions that have been effective in this setting include self-help groups for women who have lost husbands, traditional Buddhist relaxation methods, and meditation. Those individuals requiring more intensive support and pharmacologic interventions were referred for specialist psychiatric care.

From an allopathic perspective, cognitive-behavioral approaches to the treatment of trauma-related symptoms are known to be effective in children exposed to various traumatic events, with better outcomes associated with the inclusion of children's caregivers in offering these treatments.²⁷ However, group therapy also has been shown to be effective,⁴⁵ and the use of traditional relaxation methods in group settings such as schools is likely to bring benefits to children affected by disaster.³⁹ Counselors should be encouraged to utilize children's energies in a creative way, by engaging them in structured activities relevant to a particular age group and thereby allowing them to express their emotions. Teachers are an important resource to assist with the well-being of children but for reasons already discussed should provide ongoing curriculum-based learning for children and adolescents. At a planning level, psychosocial training for teachers should be ongoing.

Finally, when a community caught up in disaster is actively engaged at all levels in the provision of interventions aimed at promoting the well-being of its inhabitants, there is often a resulting sense of communality that is like gold pavers on the long road to recovery. The local community becomes empowered to define solutions for its current crisis and for any problems ahead. Such communities are capable of disseminating knowledge and support to a wider population.

Disclosure of off-label usage: The authors have determined that, to the best of their knowledge, no investigational information about pharmaceutical agents that is outside U.S. Food and Drug Administration–approved labeling has been presented in this article.

REFERENCES

- Sapir DG. Natural and man-made disasters: the vulnerability of women-headed households and children without families. *World Health Stat Q* 1993;46:227–233
- Norris FH, Friedman MJ, Watson PJ, et al. 60,000 disaster victims speak, pt 1: an empirical review of the empirical literature, 1981–2001. *Psychiatry* 2002;65:207–239
- Wang X, Gao L, Zhang H, et al. Post-earthquake quality of life and psychological well-being: longitudinal evaluation in a rural community sample in northern China. *Psychiatry Clin Neurosci* 2000;54:427–433
- Morrow BH. Identifying and mapping community vulnerability. *Disasters* 1999;23:1–18
- Hutton D, Haque CE. Human vulnerability, dislocation and resettlement: adaptation processes of river-bank erosion-induced displacees in Bangladesh. *Disasters* 2004;28:41–62
- Chou YJ, Huang N, Lee CH, et al. Who is at risk of death in an earthquake? *Am J Epidemiol* 2004;160:688–695
- Lima BR, Pai S, Santacruz H, et al. Psychiatric disorders among poor victims following a major disaster: Armero, Colombia. *J Nerv Ment Dis* 1991;179:420–427
- World Health Organization. Gender and women's health: gender and disaster. 2005. Available at: http://w3.whoa.org/en/Section13/Section390_8282.htm. Accessed June 2, 2005
- Meyers M. "Women and children first": introducing a gender strategy into disaster preparedness. *Focus Gen* 1994;2:14–16
- Stephenson RS, DuFrane C. Disasters and development, pt 2: understanding and exploiting disaster-development linkages. *Prehospital Disaster Med* 2002;17:170–174
- Norris FH, Alegria M. Mental health care for ethnic minority individuals and communities in the aftermath of disasters and mass violence. *CNS Spectr* 2005;10:132–140
- Austin LS, Godleski LS. Therapeutic approaches for survivors of disaster. *Psychiatr Clin North Am* 1999;22:897–910
- Epstein RS, Fullerton CS, Ursano RJ. Posttraumatic stress disorder following an air disaster: a prospective study. *Am J Psychiatry* 1998;155:934–938
- North CS, Nixon SJ, Shariat S, et al. Psychiatric disorders among survivors of the Oklahoma City bombing. *JAMA* 1999;282:755–762
- Basoglu M, Salcioglu E, Livanou M. Traumatic stress responses in earthquake survivors in Turkey. *J Trauma Stress* 2002;15:269–276
- Kessler RC, Sonnega A, Bromet E, et al. Posttraumatic stress disorder in the National Comorbidity Survey. *Arch Gen Psychiatry* 1995;52:1048–1060
- Breslau N, Davis GC, Andreski P, et al. Sex differences in posttraumatic stress disorder. *Arch Gen Psychiatry* 1997;54:1044–1048
- Perkonig A, Kessler RC, Storz S, et al. Traumatic events and post-traumatic stress disorder in the community: prevalence, risk factors and comorbidity. *Acta Psychiatr Scand* 2000;101:46–59
- Guarnaccia PJ, Canino G, Rubio-Stipec M, et al. The prevalence of ataques de nervios in the Puerto Rico disaster study: the role of culture in psychiatric epidemiology. *J Nerv Ment Dis* 1993;181:157–165
- Armenian HK, Morikawa M, Melkonian AK, et al. Risk factors for depression in the survivors of the 1988 earthquake in Armenia. *J Urban Health* 2002;79:373–382
- Kuo CJ, Tang HS, Tsay CJ, et al. Prevalence of psychiatric disorders among bereaved survivors of a disastrous earthquake in Taiwan. *Psychiatr Serv* 2003;54:249–251
- Brewin CR, Andrews B, Valentine JD. Meta-analysis of risk factors for posttraumatic stress disorder in trauma-exposed adults. *J Consult Clin Psychol* 2000;68:748–766
- World Health Organization. Gender and health in disasters. 2002. Available at: <http://whqlibdoc.who.int/gender/2002/a85575.pdf>. Accessed June 2, 2005
- World Health Organization. Gender considerations in disaster assessment. 2005. Available at: http://www.who.int/gender/other_health/en/gwhdisasterassessment.pdf. Accessed June 2, 2005
- Caffo E, Belaise C. Psychological aspects of traumatic injury in children and adolescents. *Child Adolesc Psychiatr Clin N Am* 2003;12:493–535
- Newman CJ. Disaster at Buffalo Creek, children of disaster: clinical observations at Buffalo Creek. *Am J Psychiatry* 1976;133:306–312
- Brown EJ. Clinical characteristics and efficacious treatment of posttraumatic stress disorder in children and adolescents. *Pediatr Ann*

- 2005;34:138–146
28. Somasundaram D. Psychiatric sequelae to a chronic civil war. In: *Scarred Minds: the Psychological Impact of War on Sri Lankan Tamils*. New Delhi, India: Sage Publications; 1998:174–220
 29. Epidemiological survey of children's mental health in the Vanni region. In: *VIVO (Victims' Voice)*. Colombo, Sri Lanka: German Technical Cooperation; 2003
 30. Mental Health Task Force In Disaster, Jaffna District. Qualitative Assessment of Psychosocial Issues Following the Tsunami. Available at: http://www.who.int/hac/events/tsunamiconf/presentations/2_14_non_governmental_actors_canagarathnam_doc.pdf. Accessed June 2, 2005
 31. Fernandez LS, Byard D, Lin CC, et al. Frail elderly as disaster victims: emergency management strategies. *Prehospital Disaster Med* 2002;17:67–74
 32. Chung MC, Werrett J, Easthope Y, et al. Coping with post-traumatic stress: young, middle-aged and elderly comparisons. *Int J Geriatr Psychiatry* 2004;19:333–343
 33. Phifer JF. Psychological distress and somatic symptoms after natural disaster: differential vulnerability among older adults. *Psychol Aging* 1990;5:412–420
 34. Thompson MP, Norris FH, Hanacek B. Age differences in the psychological consequences of Hurricane Hugo. *Psychol Aging* 1993;8:606–616
 35. Wood DP, Cowan ML. Crisis intervention following disasters: are we doing enough? (A second look). *Am J Emerg Med* 1991;9:598–602
 36. Brewin CR, Rose S, Andrews B, et al. Brief screening instrument for post-traumatic stress disorder. *Br J Psychiatry* 2002;181:158–162
 37. Meltzer-Brody S, Churchill E, Davidson JR. Derivation of the SPAN, a brief diagnostic screening test for post-traumatic stress disorder. *Psychiatry Res* 1999;88:63–70
 38. Stuber J, Galea S, Pfefferbaum B, et al. Behavior problems in New York City's children after the September 11, 2001, terrorist attacks. *Am J Orthopsychiatry* 2005;75:190–200
 39. Somasundaram DJ, van de Put W. Putting mental health in perspective. *Bull World Health Organ* 1999;77:275–277
 40. World Health Organization. Mental health in emergencies. 2003. Available at: <http://www.wpro.who.int/NR/rdonlyres/6312A18D-1B1C-4F03-928C-394E24D9A7E6/0/MentalHealthinEmergencies.pdf>. Accessed June 2, 2005
 41. de Jong JTVM. Public mental health, traumatic stress and human rights violations in low-income countries: a culturally appropriate model in times of conflict, disaster and peace. In: de Jong JTVM, ed. *War, Trauma and Violence: Public Mental Health in Socio-Cultural Context*. New York, NY: Plenum Press; 2002:1–93
 42. van de Put WACM, Eisenbruch M. Internally displaced Cambodians: healing trauma in communities. In: Miller K, Rasco L, eds. *The Mental Health of Refugees: Ecological Approaches to Healing and Adaptation*. Mahwah, NJ: Lawrence Erlbaum Associates, Inc; 2004:133–159
 43. Hosin AA. Children of traumatized and exiled refugee families: resilience and vulnerability: a case study report. *Med Confl Surviv* 2001;17:137–145
 44. Macy RD, Behar L, Paulson R, et al. Community-based, acute posttraumatic stress management: a description and evaluation of a psychosocial-intervention continuum. *Harv Rev Psychiatry* 2004;12:217–228
 45. Chemtob CM, Nakashima JP, Hamada RS. Psychosocial intervention for postdisaster trauma symptoms in elementary school children: a controlled community field study. *Arch Pediatr Adolesc Med* 2002;156:211–216
 46. Somasundaram DJ. Using traditional relaxation techniques in minor mental health disorders. *Int Medical J* 2002;9:191–198
 47. Somasundaram DJ, van de Put WA, Eisenbruch M, et al. Starting mental health services in Cambodia. *Soc Sci Med* 1999;48:1029–1046
 48. The International Federation of Red Cross and Red Crescent Societies. *World Disasters Report 2001*. Geneva, Switzerland: The International Federation of Red Cross and Red Crescent Societies; 2001
 49. Howard JM, Goelitz A. Psychoeducation as a response to community disaster. *Brief Treat Crisis Interv* 2004;4:1–10