ORIGINAL RESEARCH

Rapid Needs Assessment of Hurricane Katrina Evacuees—Oklahoma, September 2005

Sara Russell Rodriguez, MSN, MPH;[1] Jolianne Stone Tocco, MPH;[2] Sue Mallonee, RN, MPH;[3] Lauri Smithee, MS;[2] Timothy Cathey, MD;[4] Kristy Bradley, DVM[2]

1. Epidemic Intelligence Service, Centers for Disease Control and Prevention, Atlanta, Georgia USA; Oklahoma State Department of Health, Oklahoma City, Oklahoma USA
2. Communicable Disease Division, Oklahoma State Department of Health, Oklahoma City, Oklahoma USA
3. Office of Scientific Affairs, Oklahoma State Department of Health, Oklahoma City, Oklahoma USA
4. Emergency Medical Services, Oklahoma State Department of Health, Oklahoma City, Oklahoma USA

Correspondence:
Sara Russell Rodriguez
Oklahoma State Department of Health, Communicable Disease Division
1000 NE 10th Street
Oklahoma City, Oklahoma USA
E-mail: srussell@tchd.org

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Keywords: Camp Gruber; demographics; evacuation camp; evacuees; Hurricane Katrina; mental health; Oklahoma; post-traumatic stress disorder; rapid needs assessment

Abbreviations:
CI = confidence interval
OSDH = Oklahoma State Department of Health
PTSD = post-traumatic stress disorder
OR = odds ratio

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Abstract

Introduction: On 04 September 2005, 1,589 Hurricane Katrina evacuees from the New Orleans area arrived in Oklahoma. The Oklahoma State Department of Health conducted a rapid needs assessment of the evacuees housed at a National Guard training facility to determine the medical and social needs of the population in order to allocate resources appropriately.

Methods: A standardized questionnaire that focused on individual and household evacuee characteristics was developed. Households from each shelter building were targeted for surveying, and a convenience sample was used.

Results: Data were collected on 197 households and 373 persons. When compared with the population of Orleans Parish, Louisiana, the evacuees sampled were more likely to be male, black, and 45–64 years of age. They also were less likely to report receiving a high school education and being employed pre-hurricane. Of those households of >1 persons, 63% had at least one missing household member. Fifty-six percent of adults and 21% of children reported having at least one chronic disease. Adult women and non-black persons were more likely to report a pre-existing mental health condition. Fourteen percent of adult evacuees reported a mental illness that required medication pre-hurricane, and eight adults indicated that they either had been physically or sexually assaulted after the hurricane. Approximately half of adults reported that they had witnessed someone being severely injured or dead, and 10% of persons reported that someone close to them (family or friend) had died since the hurricane. Of the adults answering questions related to acute stress disorder, 50% indicated that they suffered at least one symptom of the disorder.

Conclusions: The results from this needs assessment highlight that the evacuees surveyed predominantly were black, of lower socio-economic status, and had substantial, pre-existing medical and mental health concerns. The evacuees experienced multiple emotional traumas, including witnessing grotesque scenes and the disruption of social systems, and had pre-existing psychopathologies that predisposed this population to post-traumatic stress disorder (PTSD). When disaster populations are displaced, mental health and social service providers should be available immediately upon the arrival of the evacuees, and should be integrally coordinated with the relief response. Because the displaced population is at high risk for disaster-related mental health problems, it should be monitored closely for persons with PTSD. This displaced population will likely require a substantial re-establishment of financial, medical, and educational resources in new communities or upon their return to Louisiana.

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Introduction

Catastrophic events destroy major portions of the infrastructure of a community and cause pervasive acute medical and public health needs resulting from a disruption in the availability of food, water, and shelter.[1] On 29 August 2005, Hurricane Katrina, a Category 4 hurricane, struck the coastline of

Louisiana and Mississippi. The winds and flooding caused extensive damage to homes and businesses in the New Orleans, Louisiana area. Many residents evacuated before the hurricane made landfall. However, the damage to the New Orleans area displaced approximately 220,000 persons who neeeded assistance in relocating.[2] Displaced populations are particularly vulnerable to infectious disease morbidity and stress-related mental health and substance abuse problems.[3–5]

On 04 September 2005, 1,589 evacuees arrived in northeastern Oklahoma and were housed at Camp Gruber, a National Guard training facility. The evacuees arrived after traveling 20–30 hours by bus, directly from the New Orleans area (the majority came from the Superdome). From the time that the hurricane occurred, the evacuees had received minimal medical care, and had limited access to basic provisions such as food, water, and clothing. Upon arrival at Camp Gruber, urgent medical needs were addressed immediately, and fully staffed medical and mental health clinics were established to care for the evacuees. Evacuees requiring a higher level of care were transferred to a local hospital for further evaluation and treatment. One of the primary objectives of a public health response to disasters is to rapidly determine the medical and social needs of the affected population in order to allocate resources appropriately.[6–8] To accomplish this objective, the Oklahoma State Department of Health (OSDH) conducted a rapid needs assessment of the population remaining in the evacuation center four days after arrival in Oklahoma.

Methods

Questionnaire Development

A standardized questionnaire was developed that focused on individual and household evacuee characteristics for those persons housed at Camp Gruber. Question topics included demographics, household composition, employment and educational status, and future housing plans. Additionally, respondents indicated their medical and mental health conditions and needs by answering "yes" or "no" to a list of conditions and needs included in the questionnaire. The questionnaire was modeled after previous post-disaster surveys developed by individual states and the (US) Centers for Disease Control and Prevention (CDC). Parents or guardians answered questions regarding respondents <18 years of age. Consent was obtained by proxy or verbal parental permission. A household was defined as all persons living in the same dwelling the day before the hurricane occurred (28 August 2005). If a person reported having lived in a group setting (e.g., a hostel, shelter, or residence with multiple roommates), only family members were considered part of the household. A household member was considered missing if they had died, were geographically separated, or their location and status were unknown. Three questions regarding trouble sleeping, feeling isolated or distant from family, and feeling jumpy or restless, were asked to assess acute stress disorder symptoms.[9,10] The acute stress disorder questions and current mental health questions were asked only of those persons aged $\geq$18 years.

Questionnaire Administration

Epidemiologists from OSDH administered the survey from 08–09 September 2005. The evacuee center at Camp Gruber consisted of 11 occupied barracks, including five family barracks, two for single women, two for single men, and two for persons with special medical needs. The majority of the barracks had three or four wings, and each wing could accommodate 50–200 persons. Each of the 11 barracks was included in the needs assessment, and a convenience sample of persons within each barrack was used. During the interview, if medical or social needs were identified, the interviewer verbally referred the person or family to the appropriate resource within Camp Gruber. If an urgent medical need was identified (i.e., critical illness, homicidal or suicidal ideation), the person was escorted to the medical or mental health clinic by the interviewer, or emergency medical services were called.

Data Analysis

The data-entry form and database were created in EpiInfo 3.2.2 (US Department of Health and Human Services, Centers for Disease Control and Prevention, Atlanta, Georgia). Data were processed using SAS® 9.1 (SAS Institute, Inc., Cary, North Carolina). The representative nature of the sample was assessed by comparing the sample with data obtained by the American Red Cross on all Camp Gruber evacuees. When comparing proportions in the sampled population of Camp Gruber with the reference population of Orleans Parish, the geographical region where New Orleans is located,[11] a one-sample test for binomial proportions was used.[12] Associations within the sampled population of Camp Gruber were analyzed by using a Mantel-Haenszel statistic. Interviewees did not answer all of the questions. Because of a changing denominator, all percentages reflect the number of persons or households who answered in the affirmative, divided by the number of persons or households who responded to the question.

Results

Of the 1,589 original evacuees, an estimated 1,100 (69%) evacuees were housed at Camp Gruber from 08–09 September 2005. Data were collected on 197 households and 373 persons (34% of the population). Persons from each of the 11 barracks were represented in the sample. The sampled population was similar to the entire Camp Gruber population regarding age and sex. The sample population slightly overrepresented those who were housed in the smaller barracks (e.g., barracks that housed persons with special medical needs, including those who were physically or mentally disabled).

Ninety-nine percent (n = 194) of the households were residents of Louisiana. Of those households with >1 person (n = 134), 63% (n = 84) had at least one missing household member. Twenty-nine percent reported owning their apartment or home compared with 46.5% in Orleans Parish (p <0.0001). Prior to the hurricane, the majority (58%) of households were living in a rented apartment or house, 4% (n = 7) identified themselves as homeless, and 10% (n = 19) had other types of living arrangements. Sixty-one percent (n = 119) of the households reported that their residences

Variable	Number	Camp Gruber (%)	Orleans Parish (%)	*p*-value
Gender				
Male	207	56	47	0.0005
Female	164	44	53	
Total	371			
*Age (years)**				
0-4	23	6	7	0.48
5-24	104	28	31	0.23
25-44	90	25	30	0.04
45-64	122	33	21	<0.0001
>64	29	8	12	0.02
Total	368			
*Race***				
Black	300	84	67	
Non-Black	59	16	33	<0.0001
Total	359			

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Table 1—Demographics of Hurricane Katrina evacuees housed at Camp Gruber—Oklahoma, September 2005, compared with the population of Orleans Parish, Louisiana (Table excludes two evacuees were not Louisiana residents) *Age unknown for three persons; **Race unknown for 12 persons

currently were uninhabitable or completely destroyed, 29% (n = 57) did not know the status of their residences, and 10% (n = 20) reported that their residences still were habitable. When households were questioned regarding their long-term housing plans (during the next 12 months), 36% (n = 72) reported that they were planning to return to their state of residence, 22% (n = 43) planned on relocating out of Oklahoma to another state (other than state of residence), 17% (n = 35) were planning to find temporary or permanent housing in Oklahoma, and 24% (n = 48) were unsure of their long-term housing plans.

The demographics of the persons who participated in the survey are indicated in Table 1. When compared with the population of Orleans Parish, the evacuees were more likely to be male, black, and 45–64 years of age. The greatest proportion of evacuees was in the 45–64 year age group. Seventy-four percent (n = 272) of the evacuees were $\geq$18 years of age, and therefore, were classified as adults; 26% (n = 98) were classified as children.

Of those children whose caretakers answered questions regarding special needs education (n = 64), 20% (n = 13) were reported to have had an individualized education plan (IEP) during their current year of school. Twenty-one percent (n = 19) of the children were reported to have at least one chronic disease; 68% (n = 13) of these children were reported to have respiratory disease.

Among the adult Louisiana residents ($\geq$18 years of age) who provided information on employment status (n = 256), 48% were working part-time or full-time the day before the hurricane, compared with 58% of the population in Orleans Parish ($p = 0.001$). Of the Louisiana residents $\geq$25 years of age who reported their education level (n = 221), 58% reported a high school education or higher, compared with 75% of the population in Orleans Parish ($p < 0.0001$). Of adults who responded to questions about health insurance (n = 243), 78% (n = 189) either reported no health insurance (41%) or public assistance (e.g., Medicare or Medicaid) (37%); the remainder reported either private, military, or other government insurance.

Of the adult evacuees, 14% reported a mental illness that required medication pre-hurricane (n = 34), and eight adults indicated that they were either physically or sexually assaulted since the hurricane. Nearly half (42%) of the adults reported that they had witnessed someone severely injured or dead; 10% (n = 20) of persons reported that someone close to them (family or friend) had died since the hurricane. Of the adults questioned on all three acute stress disorder questions (n = 234), 50% (n = 117) answered "yes" to at least one question; 15% (n = 36) answered "yes" to all three acute stress disorder questions.

Of the 241 adults who answered questions about chronic health conditions, approximately half (56%) reported that they had at least one chronic illness. Of these, half reported hypertension; a third reported severe arthritis; and one-quarter reported mental illness and respiratory disease (Table 2). Those reporting chronic disease were more likely to be female, non-black, and >55 years of age (Table 3). Adult women were significantly more likely than men to

Variable	Number	Percent (%)
High blood pressure	62	(46)
Severe arthritis	46	(34)
Mental illness	34	(25)
Respiratory disease	33	(24)
Heart disease	26	(19)
Diabetes	22	(16)
Gastrointestinal disease	19	(14)
Altered mental status or dementia	19	(14)

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Table 2—Proportion of chronic diseases among adult evacuees with at least one reported chronic disease*
(n = 136)—Camp Gruber, Oklahoma, September 2005
*These conditions are not exhaustive nor mutually exclusive.

Variable	Total	Chronic Illness		Univariate Analysis		
	Number	Number	Percent (%)	Odds Ratio	95% CI	*p*-value
Total	241*	136*	56.4			
Sex						
Female	143	73	51.1	1.00		
Male	98	63	64.3	1.7	1.03-3.0	0.04
Age (years)						
18-55	182	86	47.3	1.00		
≥56	59	50	84.8	6.2	2.7-14.4	<0.0001
Race						
Black	192	102	53.1	1.00		
Non-Black	44	32	72.7	2.3	1.09-5.2	0.02

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Table 3—Description and analysis of adult evacuees (n = 241) reporting at least one chronic illness—Camp Gruber, Oklahoma, September 2005 (CI = confidence interval)
*Data unavailable for 31 adults.

report a pre-existing mental health condition (odds ratio (OR): 2.4; 95% confidence interval (CI) = 1.1–4.9). Similarly, non-black adult evacuees were significantly more likely than black evacuees to report a pre-existing mental health condition (OR: 2.4; 95% CI = 1.1–5.4). Approximately one-third of adults reported an injury (30%). Of those adults reporting at least one injury (n = 70), 52% (n = 37) reported scrapes or bruises; 48% (n = 34) reported cuts; and 28% (n = 20) reported bites or stings. Fewer persons reported sprains (11%), burns (6%), or broken bones (1%).

Discussion

The results of the needs assessment highlight that the Hurricane Katrina evacuees in Oklahoma who were surveyed were predominantly black and of lower socio-economic status, and had substantial pre-existing medical and mental health conditions. When compared with the population of Orleans Parish, the sampled population at Camp Gruber was less likely to have their own home, to have completed high school, and to be in the labor force. In addition, 78% of the evacuees were either uninsured or covered by Medicare or Medicaid. Approximately 60% of the adults and one-quarter of children had at least one chronic condition before the hurricane. Minority populations and those with lower socio-economic status have greater health and social needs,[13–15] and are considered especially vulnerable to acute medical and mental health problems, as well as the exacerbation of chronic medical conditions resulting from complex emergencies like Hurricane Katrina.[1,16] Thus, this displaced population likely will require substantial financial, medical, and educational resources to be re-established in new communities or upon return to Louisiana.

Pre-existing psychopathology is a major predictor for the development of the post-traumatic stress disorder (PTSD) during or after disasters, and 14% of the adult evacuees reported requiring medication for a pre-existing

mental illness.[1,9,17,18] Additional factors (e.g., witnessing grotesque scenes and disruption of social systems) also predict that individual persons will experience psychological problems in response to a disaster.[1,17–19] Fifty percent of the adult evacuees exhibited at least one symptom of acute stress disorder; 15% answered "yes" to all three questions, indicating a likely need for mental health services. Although pretrauma risk factors (i.e., pre-existing mental illness, low socio-economic status) have been shown to contribute to a lack of resiliency in response to stressors and the development of PTSD, factors operating during or after the trauma, such as trauma severity, psychological emotional response directly post-trauma, lack of social support, and other life stressors, have been shown to be stronger predictors of PTSD.[17,18,20–22] Providing for the immediate needs of the evacuees, such as locating missing household members and reuniting families, would likely mitigate certain post-disaster stressors and should be an early priority to re-establish familiar social networks and to provide emotional and financial support to the displaced families.

Mental health is a central concern during complex emergencies,[23] and the capacity of the mental health infrastructure to deal with this need is challenged.[24–26] Although single debriefing sessions with traumatized persons do not lessen symptoms of PTSD and depression,[27–29] other psychological treatments have been shown to be effective, such as individual and group trauma focused cognitive-behavioral therapy and stress management.[30] Early intervention might allow mental health professionals to triage those who are likely to be at risk for more severe mental illness.[31] These results indicate that mental health and social service providers should be available immediately upon the arrival of the evacuees and be integrally coordinated with the relief response.[24,32]

Although the assessment was done four days after the evacuees had arrived, the need for medical and mental health services continued to be identified during the interview process. Minority populations might not actively pursue mental health services because of unrecognized need or stigma.[16] Mental and medical health practitioners should provide active outreach so that these services can reach all of those in need. Because this population is at high risk for disaster-related mental health illnesses, they should be monitored closely for PTSD. These persons should be offered more directed, long-term, mental health services in an attempt to prevent PTSD and post-trauma depression. Because Katrina evacuees have resettled across the country and there is no accurate national database, it will be challenging for medical and mental health practitioners to provide appropriate follow-up care. Children also can be substantially affected by disasters and post-traumatic events, and future needs assessments should attempt to capture the level of mental health needs of children.[32–35]

Limitations

This needs assessment had certain limitations. Although each barrack was represented in the survey, a convenience sample was used. The barracks provided privacy, and were chosen as interview sites as opposed to a more public area (e.g., the food line) because of the sensitive nature of the questions being asked. A convenience sample inside the barracks also was chosen because of the uncertain number of persons at the camp and the high mobility of the population in, around, and off of the campgrounds. Therefore, the sample might not be representative of the entire population of evacuees at Camp Gruber. However, the demographic data gathered in the sample were similar to the data gathered on the total population. In addition, the survey was completed four days after the evacuees had arrived. Thus, the nearly one-third of the original evacuees who were able to leave the evacuation center before the assessment might have been less likely to need social or medical services. This study also was more likely to include those in the special medical needs barracks, and might have overrepresented the medical needs of the population. However, previous mental health diagnoses were determined by questioning whether the person had been prescribed medication for a mental health condition pre-hurricane. This methodology would not include those undiagnosed or unmedicated, or those with substance abuse disorders, possibly underestimating mental health needs. In addition, the medical and mental health questions were not exhaustive. For example, dental health and substance abuse disorders were not assessed.

This needs assessment did not attempt to gather information on evacuees that were being housed outside of Camp Gruber. The camp was the only official shelter in the state of Oklahoma and the existence of a database where other evacuees were housed (i.e., individual homes, small church-sponsored shelters) was unknown. Rapid needs assessments are performed on a clearly defined population, and it is unlikely that a rapid assessment of the full, displaced population would be possible or useful in such disasters.

Conclusions

Rapid needs assessments traditionally are performed during complex emergencies to determine needs and allocate resources appropriately.[6–8] This needs assessment was accomplished with substantial personnel resources during a two-day period, and rapid mobilization of personnel to administer the questionnaire was difficult. It is recommended that interviewers have critical incident stress management training, including sensitive interviewing techniques before mobilization. Training on the survey tool is vital, and feedback sessions during the day and post-needs assessment should be scheduled. Substantial resources should be allocated to perform data entry and analysis in order to rapidly give feedback to those prioritizing resources.

The population at Camp Gruber began further relocation quickly. The OSDH was unable to use the results of this needs assessment to direct the resources and activities while the displaced population still was being housed at Camp Gruber, limiting the utility of the needs assessment for the Katrina evacuees. However, the post-Katrina disaster represented one of the first times the public health community was presented with the challenge of receiving and responding to a large displaced population. The knowledge and information gained from this needs assessment will be

valuable for planning and directing future emergency relief activities of displaced populations.

Lessons Learned

1. A needs assessment on a highly mobile community may have limited utility for the community itself;
2. If a needs assessment is warranted, the team should be given early access to the community (i.e., within 1–2 days);
3. Substantial and dedicated resources must be allocated to entering and analyzing the needs assessment data for appropriate allocation of resources and prompt feedback to the displaced community;
4. The public health community should offer medical and mental health services early in the response to the displaced population, including outreach to those who may be reluctant to pursue services actively;
5. Due to the difficult nature of interviewing a displaced, possibly traumatized population, interviewers should be trained on incident stress management and sensitive interviewing techniques; and
6. The public health community should continue to critically evaluate its response in order to better serve the needs of any future displaced communities.

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References

1. Noji EJ (ed): *The Public Health Consequences of Disasters*. New York, NY: Oxford University Press, 1997; pp 14–15.
2. Federal Emergency Management Agency: Hurricane Katrina response and recovery update, Sept 4, 2005. Washington, DC: US Department of Homeland Security, FEMA; 2005. Available at: http://www.fema.gov/news/newsrelease.fema?id=18602. Accessed 25 February 2006.
3. Waring S, Brown B: The threat of communicable diseases following natural disasters: A public health response. *Disaster Manag Response* 2005;3:41–47.
4. Noji EK: The public health consequences of disasters. *Prehosp Disast Med* 2000;15(4):147–157.
5. Gray M, Maguen S, Litz B: Acute psychological impact of disaster and large scale trauma. *Prehosp Disast Med* 2004;19(1):64–72.
6. Centers for Disease Control and Prevention (CDC): Rapid needs assessment of the needs and health status of older adults after hurricane Charley—Charlotte, DeSoto, and Hardee Counties, Florida, August 27–31, 2004. *MMWR* 2004;53:837–840.
7. Waring SC, Reynolds KM, D'Souza G, Arafat RR: Rapid assessment of household needs in the Houston area after Tropical Storm Allison. *Disaster Manag Response* 2002;3–9.
8. Centers for Disease Control and Prevention (CDC): Community needs assessment of lower Manhattan residents following the World Trade Center attacks—Manhattan, New York City, 2001. *MMWR* 2004;51:10–13.
9. North CS, Nixon SJ, Shariat S, *et al*: Psychiatric disorders among survivors of the Oklahoma City bombing. *JAMA* 1999;282:755–762.
10. American Psychiatric Association: *Diagnostic and Statistical Manual of Mental Disorders*. 4th ed. Text Rev. Washington, DC: American Psychiatric Association; 2000.
11. US Census Bureau: State and county quick fact: Orleans Parish, Louisiana. Washington, DC: US Census Bureau; 2005. Available at http://quickfacts.census.gov/qfd/states/22/22071.html. Accessed 25 February 2006.
12. Rosner B: *Fundamentals of Biostatistics*. 5th ed. Pacific Grove, CA: Duxbury; 2000: pp 249–251.
13. CDC: REACH 2010 Surveillance for health status in minority communities—United State, 2001–2002. *MMWR* 2004;53(No. SS-06):1–36.
14. CDC: Surveillance for sensory impairment, activity limitation, and health-related quality of life among older adults—United States, 1993–1997. *MMWR* 1999;48(No. SS-08):131–156.
15. CDC: Public health and aging: Health-related quality of life among low-income persons aged 45–64 years—United States, 1995–2001. *MMWR* 2003;52:1120–1124.
16. 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.
17. Brewin CR, Andrews B, Valentine JD: Meta-analysis of risk factors for post-traumatic stress disorder. *J Consult Clin Psychol* 2000;68(5):748–766.
18. Ozer EJ, Best SR, Lipsey TL, Weiss DS: Predictors of post-traumatic stress disorder and symptoms in adults: A meta-analysis. *Psychol Bull* 2003;129(1):52–73.
19. Cordova MJ, Walser R, Neff J, Ruzek JI: Predictors of emotional adjustment following traumatic injury: Personal, social and material resources. *Prehosp Disast Med* 2005;20(1):7–13.
20. Ruzek J, Young B, Cordova M, Flynn B: Integration of disaster mental health services with emergency medicine. *Prehosp Disast Med* 2004;19(1):46–53.
21. Dalgard OS, Bjork S, Tambs K: Social support, negative life events and mental health. *Br J Psychiatry* 1995(1);166:29–34.
22. Stansfeld SA, Fuhrer R, Shipley MJ: Types of social support as predictors of psychiatric morbidity in a cohort of British civil servants (Whitehall II Study). *Psychol Med* 1998;28(4):881–892.
23. Mollica RF, Cardozo BL, Osofsky HJ, *et al*: Mental health in complex emergencies. *Lancet* 2004;364(9450):2058–2067.
24. Siegel C, Wanderling J, Laska E: Coping with disaster: Estimation of additional capacity of the mental health sector to met extended service demands. *J Ment Health Policy Econ* 2004;7:29–35.
25. Guha-Sapir D, Van Panhuis W, Langoutte J: Aid after disaster: Evidence for psychosocial service need. *BMJ* 2005;331:50.
26. McFarlane AC: Long-term psychiatric morbidity after a natural disaster. *Med J Aust* 1986;145(11–12):561–563.
27. Gray MJ, Maguen S, Litz BT: Acute psychological impact of disaster and large-scale trauma: Limitations of traditional interventions and future practice recommendations. *Prehosp Disast Med* 2004;19(1):64–72.
28. van Emmerik AAP, Kamphuis JH, Hulsbosch AM, Emmelkamp PMG: Single session debriefing after psychological trauma: A meta-analysis. *Lancet* 2002;360(9335):766–771.
29. Rose S, Bisson J, Churchill R, Wessely S: Psychological debriefing for preventing post traumatic stress disorder (PTSD). *Cochrane Database Syst Rev* 2006;1.
30. Bisson J, Andrew J: Psychological treatment of post-traumatic stress disorder (PTSD) (Review). *Cochrane Database Syst Rev* 2006;2.
31. Alexander DA: Psychological intervention for victims and helpers after disasters. *Br J Gen Pract* 1990;40(337):345–348.
32. Helgson VS: Social support and quality of life. *Qual Life Res* 2003;12(Suppl 1):25–31.
33. Davis L, Siegel LJ: Post-traumatic stress disorder in children and adolescents: A review and analysis. *Clin Child Fam Psychol Rev* 2000;3(3):135–153.
34. Reijneveld SA, Crone MR, Verhulst FC, Verloove-Vanhorick SP: The effect of a severe disaster on the mental health of adolescents: A controlled study. *Lancet* 2003;362(9385):691–696.
35. Cheever KH, Hardin SB: Effects of traumatic events, social support, and self-efficacy on adolescents' self-health assessments. *West J Nurs Res* 1999;21(5):673–684.