Psychiatric Disorders among Emotionally Distressed Disaster Victims Attending Primary Mental Health Clinics in Ecuador[1]

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Previous studies in developing countries have demonstrated post-disaster stress disorders in a substantial share of the people living through a natural calamity, but questions have remained as to the severity of these mental health problems. This article reports information derived from a 1987 study of Ecuadorian earthquake victims that shows many of the victims had diagnosable psychiatric disorders and provides insight into the nature of those disorders.

The psychosocial problems of disaster victims have gained increasing recognition over the past decade (*1*), and various reports have indicated the presence of emotional distress and psychiatric disorders among children (2) and adults (3) who have lived through a disaster experience.

While the psychosocial consequences of disasters have been fairly well documented in industrialized countries, they have been less well studied in developing nations. In this regard it is noteworthy that the geographic distribution of disasters is not uniform throughout the world and that developing countries experience a disproportionate share of disaster-related casualties and affected individuals.

Most important, while the number of people killed by disasters in developing countries is very high, the number of individuals affected is much higher. Specifically, the ratio of affected to dead persons in developing countries has been estimated at 32.9, which is more than 10 times the ratio commonly found in industrialized countries (*4*). Furthermore, within the affected countries, individuals in the lower socioeconomic strata are usually those most severely affected (*5*).

Therefore, disaster victims who are likely to face the greatest psychosocial difficulties in the aftermath of a catastrophe tend to be those with the least access to both health services in general (*6*) and mental health services in particular (*7*). This is partly because they live in poor countries and partly because within those countries they are among the poorest residents. These observations underscore the need to provide adequate health services to meet the significant and varied bio-

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psychosocial problems confronted by large numbers of affected individuals whose access to mental health specialists is extremely limited. For this purpose, alternative strategies that do not involve just the mental health sector need to be designed and implemented (*8*).

The primary health care strategy has been proposed as the only one capable of extending health care services in developing countries to those who need them most (*9*). Mental health is an integral component of primary care (*10*), but the proper role of the primary care sector in providing mental health services to disaster victims over a long period of time has not been adequately stressed. This may have been partly due to a perception that victims with significant emotional problems do not come to primary health care clinics.

To address this and related issues we developed a long-term project to explore the role of the primary care sector in providing mental health services to disaster victims in developing countries. Within the framework of this project, using a basic interview instrument known as the "Self-Reporting Questionnaire" (SRQ), we have studied victims of two major natural disasters in Latin America.

The first of these disasters occurred in 1985, when a volcanic eruption in Colombia produced a mudslide that completely destroyed the town of Armero, killing 80% of its 30,000 inhabitants. Survivors were placed in tent camps and were subsequently relocated to neighboring towns. In previous reports we documented a high prevalence of emotional distress among the adult victims living in tent camps (*11*) and a high frequency of psychiatric disorders among these emotionally distressed individuals (*12*). We also found a high proportion of individuals with significant emotional distress among adult patients coming to the primary health care clinics in the disaster area (*13*), most of whom were suffering from clinically diagnosable emotional disorders (*14*).

The Armero disaster, however, was an extreme situation that produced a very high fatality rate and a multiplicity of health problems among the survivors (*15*). The applicability of our findings to less extreme disasters, which are actually more frequent, remained open to question. It seemed important, therefore, to repeat our original investigation at the scene of a less severe disaster, utilizing the same study design and instruments.

The opportunity to do this arose when earthquakes struck Ecuador's province of Imbabura on the night of March 5, 1987. Within the Imbabura area we used the SRQ to screen a sample of adult victims attending 10 primary care clinics. Here again we found a high level of emotional distress. When compared with the emotionally distressed victims of the Armero disaster, the Ecuadorian victims had a lower prevalence of emotional distress. But the frequency of symptoms among the distressed was similar in both groups; the symptom profiles were remarkably similar; and the most frequent symptoms as well as the strongest predictors of emotional distress were also very similar (*16*).

Nevertheless, some questions remained about the severity of the Ecuadorian emotionally distressed victims' mental problems. While 40% of the emotional distress victims of the severe Armero disaster attending primary care clinics in the area had a diagnosable psychiatric disorder, we did not know whether victims with similar levels of emotional distress related to a less severe disaster would have diagnosable psychiatric disorders or only minor psychiatric morbidity that did not meet the criteria for a formal psychiatric diagnosis. To address this point, we administered a psychiatric interview to a subsample of the

SRQ-positive Imbabura victims. This article reports findings obtained from these interviews.

METHODS

Three months after the 1987 earthquakes that struck Ecuador's northern provinces we sampled 150 consecutive adult patients attending 10 health clinics in the area. These patients had come to the clinics for a variety of physical health problems and were seen by a general practitioner.

Immediately following the visit to the general practitioner, each patient was screened with the SRQ—a simple and reliable instrument that has been used and validated extensively in primary care clinics for detecting emotional distress. This instrument has been applied in various developing countries (*17*), including the Latin American countries of Brazil (*18*), Nicaragua (*19*), and Colombia (*12*), and also in a major WHO collaborative project involving seven developing countries (*20*).

The SRQ consists of 20 questions that evaluate neurotic symptoms and four questions that screen for psychotic symptoms. Because of the importance of alcohol abuse among our study population, we supplemented these questions with four on alcohol that were designed in consultation with the staff of Ecuador's program on alcoholism.

As its name implies, the SRQ can be self-administered. However, because of extensive illiteracy in the study population, it was administered to the patients by mental health professionals who had received special training in its use. Individuals were identified as emotionally distressed, and therefore as possible psychiatric cases, if they scored eight or more points on the neurotic subscale, one or more points on the psychotic subscale, or one or more points on the four-question section dealing with alcohol abuse. These cutoff points had proven adequate in assessing mental problems among the Armero victims (*12*).

A subsample of the Ecuadorian patients was subsequently referred to one of two psychiatrists who administered a semistructured psychiatric interview. No patient refused to participate. The interviewers were two of the authors (HC and NS), both of whom were familiar with issues of disaster-related mental health and had received training in the use of the research instruments. Both the screening and the interview took place on the same day. Because of limited resources for conducting the psychiatric examination, only about one of every two patients with emotional distress was interviewed.

The psychiatric interview was based on a format used routinely in the Ecuadorian psychiatric service, to which a standardized symptom checklist was appended to obtain diagnoses in accordance with the well-defined criteria of the third revision of the *Diagnostic and Statistical Manual of the American Psychiatric Association* (DSM-III) (*21*). The participating psychiatrists were asked to complete the interview schedule and to enter their clinical diagnosis; they later filled in the symptom checklist by marking the symptoms they had identified.

The first author (BL) reviewed the symptoms marked on the checklist and arrived at a DSM-III diagnosis. A patient was defined as a psychiatric case if a psychiatric diagnosis was made by the clinician on his semistructured interview of a patient who also met the DSM-III criteria required for the diagnosis as indicated by the symptom checklist. In those cases where DSM-III diagnostic criteria were not met for failure to satisfy a single criterion, but there was adequate evidence from the clinical interview that the subject was suffering from a diagnosable

mental disorder, the subject was considered to be a psychiatric case.

RESULTS

One hundred and fifty patients were initially screened with the SRQ. Of these, 60 yielded scores classifying them as a "probable case," and 37 of these (62%) were given a psychiatric interview.

We initially compared the subjects with a positive SRQ score who were interviewed (N = 37) with those who were not (N = 23) in regard to selected sociodemographic, disaster experience, and mental health variables. No significant differences emerged between the two groups with respect to sex, race, education, marital status, occupation, self-rated physical and emotional status, and disaster experience. The interviewed group was significantly older (40.0 years versus 28.1 years, p = .014) and had a higher mean neurotic subscale score (10.9 versus 7.8, p = .002).

In subsequently analyzing the outcome of the 37 psychiatric interviews, we found that 29 (78%) of the subjects were given a formal psychiatric diagnosis and 8 (22%) were not. No significant differences were found between these two groups in terms of their sociodemographic characteristics, self-rated physical and emotional status, and mean neurotic or psychotic subscale scores (Table 1).

The 29 psychiatric diagnoses indicated that 17 subjects had post-traumatic stress disorder, seven had major depression, two had generalized anxiety disorder, one had panic disorder, one had a case of alcohol abuse, and one had psychological factors complicating physical illness.

DISCUSSION

The findings of this study reveal a significant amount of psychiatric morbidity among adult patients attending primary care clinics three months after a major disaster. Our previous study with these victims (*16*) had indicated a high prevalence of individuals (40%) suffering emotional distress. Of those individuals with positive SRQ test results who were interviewed (N = 37), 78% exhibited some level of psychopathology that met conservative criteria for a psychiatric diagnosis.

This indicates that among primary care patients in a post-disaster situation who presented a high level of emotional distress, as detected by the screening instrument, the psychopathology was severe and fell into two basic categories: post-traumatic stress disorder and major depression. More specifically, it was found (1) that three months after the disaster, adult patients attending primary care clinics in the area presented significant psychiatric morbidity; (2) that these emotional problems went beyond simple distress and met criteria for a DSM-III diagnosis; and (3) that in essence, the most frequent diagnoses were post-traumatic stress disorder and major depression.

While the absence of a control group does not allow us to state from these data that the observed prevalence of psychiatric disorders in this sample differed significantly from the prevalence seen in unaffected communities, evidence from other studies strongly suggests that to be the case. For one thing, other investigators have reported that the prevalence of emotional distress identified with the SRQ among adult patients attending primary care clinics in developing countries was approximately 13.9%, which is almost three times smaller than the prevalence we found among patients in a post-disaster situation (*20*). For another, the psychiatric disorders seen among emotionally disordered individuals in routine situations have centered on minor psychiatric morbidity (*22*) or anxious and depressive conditions (*23*). Indeed, re-

Table 1. Selected sociodemographic characteristics and mental health variables of the 37 Ecuadorian subjects interviewed, by psychiatric diagnosis.

Selected characteristic	Psychiatric diagnosis: No (N = 8)	Psychiatric diagnosis: Yes (N = 29)	p
Sex (%)			
Male	12.5	20.7	NS[a]
Female	87.5	79.3	
Age in years (%)			
18–44	62.5	62.1	NS
45–65	37.5	13.8	
≥65	—	24.1	
Mean age in years (±1 SD)[a]	41.2 (±21.7)	36.9 (±17.5)	
Education in years (%)			
None	12.5	7.4	NS
1–6	50.0	63.0	
7–12	37.5	22.2	
≥13	—	7.4	
Marital status (%)			
Single	50.0	27.6	NS
Married/common law union	37.5	51.7	
Separated	—	6.9	
Widowed	12.5	13.8	
Usual predisaster occupation (%)			
None	—	—	NS
Housewife	37.5	57.1	
Unskilled	12.5	3.6	
Skilled	50.0	?	
Current occupation (%)			
Housewife	50.0	67.8	NS
Unskilled	12.5	3.6	
Skilled	37.5	28.6	
Self-rated physical state (%)			
Excellent/good	12.5	27.6	NS
Adequate/bad	87.5	72.4	
Self-rated emotional state			
Excellent/good	50.0	31.0	NS
Adequate/bad	50.0	69.0	
Mean neurotic score on SRQ (± 1SD)	10.8 (±3.5)	11.3 (±3.8)	NS

[a]SD = standard deviation; NS = not significant.

search in developing countries has found anxiety and depressive neuroses to constitute 80% of the psychiatric diagnoses (24). Post-traumatic stress disorder is rare or absent. In our case, 46% of the individuals interviewed suffered from post-traumatic stress disorder, indicating an association between the traumatic experience and the subsequent psychopathology.

These results support and expand upon our similar findings with the Armero victims who attended adult primary care services. We had seen similar levels and

kinds of psychiatric symptoms among the distressed victims studied in Ecuador and Armero; and the data considered here show that the frequency of psychiatric disorders and the distribution of psychiatric diagnoses in these two groups of victims were also similar. Even though the Ecuador disaster had a lesser impact upon the affected area, psychiatric disorders among its victims were similar to those found among victims of the significantly more devastating Armero catastrophe. The combined findings lend additional support to our contention that the primary care worker dealing with a post-disaster situation in a developing country will manage a significant proportion of adult patients with psychiatric disorders, patients whose symptomatology may be very similar irrespective of the magnitude of the impact.

Therefore, the mental health specialty sector's conventional role of providing direct services to patients should be modified to include additional functions: education, training, and supervision of the primary care worker in those areas that are specifically related to post-disaster mental health. The content of this teaching should concentrate on detection and management by the primary care worker of a few psychiatric disorders that seem to be regularly present following various types of disasters, and should provide clear guidelines for referring selected cases to the mental health specialist.

CONCLUSION

As noted above, this study supports our previous findings that post-disaster psychiatric morbidity in the affected population of a developing country is high. The results also show that three months after the disaster studied, adult patients with emotional problems constituted a large proportion of the primary care clinic caseloads and their level of emotional distress met the criteria for a formal psychiatric diagnosis. The results also underscore the fact that disasters of different magnitudes can produce similar kinds of psychopathology, for which appropriate care should be offered.

In sum, these findings confirm many of the previous observations made regarding victims of the more severe Armero disaster, emphasize the similarity of psychiatric disorders among victims of disasters with different magnitudes, and support our efforts to develop and implement a manual on disaster mental health for the training of primary care workers in Latin America.

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REFERENCES

1. Lystad M, ed. *Mental health response to mass emergencies: theory and practice.* New York: Brunner/Mazel; 1988.
2. Aptekar L, Boore JA. The emotional effects of disaster on children: a review of the literature. *Int J Mental Health.* 1990; 19(2):77–90.
3. Shore J, Tatum E, Vollner W. Evaluation of mental health effects of disaster, Mount St. Helens eruption. *Am J Public Health.* 1986;76(suppl):76–83.
4. United States, Agency for International Development, Office of Foreign Disaster Assistance. *Disaster history, significant data in major disasters worldwide, 1900–present.* Washington, DC: 1986.
5. United Nations Disaster Relief Coordinator. *Disaster prevention and mitigation, vol 2: preparedness aspects.* New York: United Nations; 1984.
6. Soberón Acevedo G, Narro J. Equidad y atención de salud en América Latina: principios y dilemas. *Bol Of Sanit Panam.* 1985:99(1):1–9.

7. Shapiro S, Skinner EA, Kramer M, Steinwachs DM, Regier DA. Measuring the need for mental health services in a general population. *Med Care*. 1985;23:1033–43.
8. Lima BR. Primary mental health care for disaster victims in developing countries. *Disasters*. 1986;10:203–204.
9. World Health Organization. *Primary health care: a joint report by the Director-General of the World Health Organization and the Executive Director of the United Nations Children's Fund*. Geneva: 1978.
10. Sartorius N. Mental health in primary health care. *Int J Mental Health*. 1988;17: 5–12.
11. Lima BR, Pai S, Santacruz H, Lozano J. Screening for the psychological consequences of a major disaster in a developing country: Armero, Colombia. *Acta Psychiatr Scand*. 1987;76:561–67.
12. Lima BR, Pai S, Santacruz H, Lozano J. Psychiatric disorders among poor victims following a major disaster: Armero, Colombia. *J Nerv Ment Dis*. 1991;173:420–27.
13. Lima BR, Pompei MS, Santacruz H, Lozano J, Pai S. La detección de problemas emocionales por el trabajador de atención primaria en situaciones de desastre: experiencia en Armero, Colombia. *Salud mental*. 1989;12:6–14.
14. Lima BR, Pai S, Caris L, et al. Psychiatric disorders in primary health care clinics one year after a major Latin American disaster. *Stress Med*. 1991;7:25–32.
15. Gueri M, Pérez LA. Medical aspects of the "El Ruiz" avalanche disaster, Colombia. *Disasters*. 1986;10:150–57.
16. Lima BR, Chávez H, Samaniego N, et al. Disaster severity and emotional disturbance: implications for primary mental health care in developing countries. *Acta Psychiatr Scand*. 1989;79:74–82.
17. Kortman F, Horn ST. Comprehension and motivation in responses to a psychiatric screening instrument: validity of the SRQ in Ethiopia. *Br J Psychiatry*. 1988;153:95–101.
18. Mari JJ, Williams P. A validity study of a psychiatric screening questionnaire (SRQ-20) in primary care in the city of São Paulo. *Br J Psychiatry*. 1986;148:23–26.
19. Penayo U, Kullgren G, Caldera T. Mental disorders among primary health care patients in Nicaragua. *Acta Psychiatr Scand*. 1990;82:82–85.
20. Harding TW, de Arango MV, Baltazar J, et al. Mental disorders in primary health care: a study of their frequency in four developing countries. *Psychol Med*. 1980; 10:231–41.
21. Helzer JE. *DSM-III criteria checklist, standalong version*. St. Louis: Department of Psychiatry, Washington University School of Medicine; 1984.
22. Cheng TA. Symptomatology of minor psychiatric morbidity: a cross cultural comparison. *Psychol Med*. 1989;19:697–708.
23. Nielsen AC, Williams TA. Depression in ambulatory medicine patients. *Arch Gen Psychiatry*. 1980;37:999–1004.
24. World Health Organization. *Mental health care in developing countries: a critical appraisal of research findings; report of a WHO study group*. Geneva: 1984. (WHO Technical Report Series, no 698).