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The Stability of Emotional Symptoms Among Disaster Victims in a Developing Country

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This stability of emotional distress following a major disaster in Colombia was evaluated in a 2-year follow-up of a representative subsample of 40 adult victims of the Armero disaster in Colombia. The utilization of the Self-Reporting Questionnaire indicated an increase of emotional distress from 55% to 78%. However, the mean neurotic subscale score, the most frequent neurotic symptoms, the strongest predictors of emotional distress, and the symptom-profiles of distressed victims were essentially the same.

KEY WORDS: emotional distress; disasters; developing countries.

INTRODUCTION

The emotional consequences of disasters, although still controversial (Quarantelli and Dynes, 1977) have been recognized in the short-term and long-term (Bromet and Schulberg, 1987; Gleser *et al.*, 1981; Shore *et al.*, 1986), mostly through clinical and social observations. Various periods have been described in the phases that precede and follow a disaster, with different psychological features, which range from enthusiasm and hope in the

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initial phase to discouragement and hatred, and later on, to mature acceptance of reality (National Institute of Mental Health, 1983).

The evolving psychosocial responses of victims suggest longitudinal variability of emotional state in response to a major disaster. These clinical and unsystematic observations, however, need to be supplemented by research data to ascertain whether these responses do indeed follow this pattern. This is particularly so because the field of disaster mental health research is rife with unreliable observations and poorly designed studies which have led to the identification of widely discrepant prevalence rates of emotional distress in victims (Bromet and Schulberg, 1987). Major factors responsible for these difficulties include methods for case identification and time of follow-up (Green, 1982).

To address some of these issues, we developed a research project utilizing the same design and instruments to ascertain to what extent the measure of emotional symptoms in disaster victims change over time. The instrument used for the screening was the Self-Reporting Questionnaire (SRQ), a simple and reliable instrument that has been widely used in developing countries of the detection of nonspecific emotional distress among patients in primary care areas and community residents (Harding *et al.*, 1980 Mari and Williams, 1985). The instrument contains a 20-item subscale for neurotic symptoms, a 4-item subscale for psychotic symptoms, and a subscale for alcoholism. An individual was identified as a "probable case" if he/she scored 8 or more points on the neurotic subscale, or 1 or more points on the psychotic subscale, or 1 or more points on the alcoholism questions.

We had originally studied the victims affected by the volcanic explosion in Colombia which, on November 13, 1985, destroyed the small town of Armero, killing 80% of its 30,000 inhabitants. Seven months after the tragedy, all adult victims ($n = 200$) living in four tent camps were screened with the SRQ. Fifty five percent scored positively on the instrument and were thought to be emotionally distressed (Lima *et al.*, 1987). Ten months after the disaster, we screened a consecutive sample of 100 adults attending primary care clinics near Armero using the same instrument (Lima *et al.*, 1989b). The sample from these clinics included many subjects who had not been directly affected by the Armero disaster, but who were living under the threat of new volcanic eruptions and had to cope with the social disorganization of their community brought about by the influx of survivors. The prevalence of emotional distress in this group was somewhat lower (45%). A similar study was conducted in Ecuador three months following the 1987 earthquakes. A consecutive sample of 150 adult patients attending primary care clinics was evaluated. These clinics were located in an area that had not been severely affected, and where there had been no casualties. These subjects were screened with the SRQ, and 40% were found to be emotionally distressed (Lima *et al.*, 1989a).

In all these studies, the mean neurotic subscale scores for individuals with positive and negative SRQ results were remarkably similar: in the Armero tents, 9.8 ± 4.4; in the Armero clinics 8.9 ± 3.8; and in the Ecuador clinics 9.7 ± 3.9. The most commonly reported symptoms and the symptoms that proved to be strongest predictors of probable "caseness" were also similar. Furthermore, the symptom-profiles of emotionally distressed victims with positive SRQ ratings were almost superimposable in all the different sample groups. These data indicated an interesting pattern of emotional responsiveness to a disaster. While the prevalence of emotional disorders among victims seemed to vary according to the severity of and exposure to the disaster, the mean neurotic score, the most frequent symptoms, the strongest predictors of emotional distress, and the symptom-profiles of the distressed victims were essentially identical for the three groups studied (Lima *et al.*, 1989a).

In the present paper, we report on a 2-year follow-up of a subsample of the original 200 individuals interviewed in the Armero tent camps. We will discuss the observed changes that occurred in this time period in the prevalence of emotional distress as defined by the SRQ, and in the symptom-profiles of those who scored positively on the SRQ. The implication of these findings for long-term planning and delivery of mental health services to victims of major disasters will also be addressed.

METHODS

The addresses of the 200 victims originally screened in tent camps following the Armero disaster were known to the local housing authority. The subjects were all located in new housing developments. A stratified sample from each new development of the town was derived. The selected subjects were visited in their homes and recruited into the study. We re-interviewed 20% of the original sample ($n = 40$). No subject refused to participate. The data were collected over a 2-week period by two senior residents of the Department of Psychiatry, University Javeriana, who had been working in the disaster area for one year and had been trained to use the research instrument.

The SRQ was given to the subjects. We identified the most frequent symptoms and the strongest predictors of emotional distress, as well as the symptom-profiles of the victims identified as emotionally distressed.

RESULTS

The comparison between the original sample ($n = 200$) and the follow-up subsample ($n = 40$) showed no significant differences for the following

Table I. Selected Characteristics (%) of Follow-up Sample (N = 40) Compared with Sample Not Followed (N = 160) at the Time of the First Assessment (1986)

Sociodemographic Variables	Follow-up		p
	Yes (N = 40)	No (N = 160)	
Sex			
Male	57.5	51.3	NS
Female	42.5	48.8	NS
Age			
(Mean)	36.5 ± 2.6	37.9 ± 1.3	NS
Education (Years)			
None	27.5	31.3	
1-5	55.0	54.4	NS
6+	17.5	14.4	
Marital status			
Single	15.0	23.1	
Married	12.5	12.5	
Common-law	57.5	41.9	NS
Separated	—	9.4	
Widow	15.0	13.1	
Self-reporting Questionnaire			
Total Score			
Positive	55.0	56.9	NS
Negative	45.0	43.1	NS
Subscale Score			
Neurotic	7.6 ± 0.8	6.8 ± 0.4	NS
Psychotic	0.3 ± 0.1	0.3 ± 0.5	NS

variables; sex, age, education, marital status, and mean neurotic and psychotic suubscales score of the SRQ (Table I).

The subsample was equally divided between males and females, with a mean age of 37.9 ± 1.3 years. Only 15% had over 6 years of schooling. One fourth were single, half were either married or had a common-law relationship, and 13% were widowed. All respondents were of mixed racial composition.

The prevalence of emotional distress in the subsample as defined by a positive SRQ score was 78%. This contrasts with the prevalence of emotional distress found in the original sample 2 years earlier: 55%. When individual subjects were looked into, we find that of the 18 subjects with no emotional distress in the first wave, 12 (66.7%) were found to be distressed 2 years later; of the 22 individuals who had been identified as emotionally distressed in 1986, 19 (86.4%) continued to be distressed in 1988 (Table II). Another important finding is that the mean neurotic score of 11.2 ± 4.7 for the distressed group was fivefold higher than the mean score for the nondistressed group (2.4 ± 2.3), a difference that is very significant ($p < 0.0001$).

The analysis of individual symptoms of the SRQ amongst the emotionally distressed subjects showed that certain symptoms were very frequently

Table II. Prevalence of Emotional Distress Among Disaster Victims as Defined by the Self-reporting Questionnaire in a 2-Year Follow-up ($N = 40$)

	First Assessment (1986)					
	Negative		Positive		Total	
Follow-up (1988)	*N*	%	*N*	%	*N*	%
Negative	6	33.3	3	13.6	9	22.5
Positive	12	66.7	19	86.4	31	77.5
Total	18	45.0	22	55.0	40	100.0

reported, but had moderate to weak predictive value for SRQ positivity (i.e., "feeling nervous, tense or worried" and "being easily frightened"). However, some infrequently reported symptoms such as "feeling unable to play useful part in life," "feeling like a worthless person," and "crying more than usual," were noted to be strong predictors of SRQ positivity.

DISCUSSION

The findings of this investigation indicate an increase in the prevalence of emotional distress among victims of a major Latin American disaster over a 2-year period. The prevalence of nonspecific emotional distress of 55% observed 7 months after the tragedy increased to 78% 2 years later. There were only 6 subjects among the follow-up with a negative SRQ score on both screenings, whereas 19 were distressed both in 1986 and 1988. On the other hand, whereas only 3 subjects converted from positive to negative, 12 subjects converted their SRQ status from negative to positive. The small sample size of the follow-up group precludes further analyses of factors associated with these observations, but it seems reasonable to assume that the impact of adverse environmental conditions in the postdisaster situation (such as poor housing and continuing unemployment) may have been at least partially responsible for the increased emotional morbidity observed. While we do not have predisaster data, the high prevalence of emotional distress encountered in this follow-up group is in strong contrast with the rates found among adult primary care attenders in various developing countries, including Colombia. In routine clinical situations in these countries, the same screening instrument showed a prevalence of only 13.9% (Harding *et al.*, 1980), underscoring the likely role of the disaster in increasing the prevalence to 55% seven months afterwards (Lima *et al.*, 1987), and of the continuing stressor and/or delayed effects of a massive trauma in increasing it further to 78% 2 years later.

We had previously noted that victims of different disasters and victims with different exposure to the same disaster had different prevalence rates of emotional distress, but a similar pattern of symptoms and complaints (Lima *et al.*, 1989a). The present data show that, whereas 2 years after the first screening a larger number of victims had become distressed, the pattern of distress was again very similar to the symptoms observed initially. On the first screening of the same 40 individuals in 1986, the mean score of SRQ positives was 10.6 ± 4.6, which is only slightly lower than the score at follow-up (11.2 ± 4.7). The most frequent symptoms and the strongest predictors of emotional distress as defined by SRQ positivity were essentially the same ones identified among victims in Armero and Ecuador. They continue to identify anxiety as the most common emotional response to trauma, and depression as the strongest predictor of emotional distress. Psychotic symptoms were consistently rare at both times of our assessments. Furthermore, the frequency of each SRQ neurotic symptom among emotionally-distressed victims in the original sample and in the follow-up group show a remarkable similarity (Fig. 1).

While it is true that our sample is comprised of victims of low socioeconomic status who had to remain in tent camps, this is the population we were

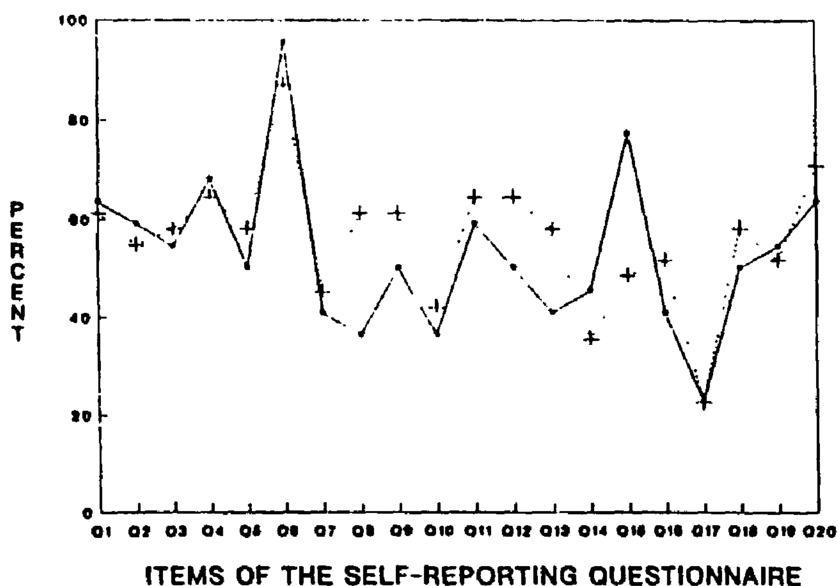

Fig. 1. Symptom profile of victims with emotional distress as defined by the Self-Reporting Questionnaire. Straight line = initial screening. Dashed line = follow-up screening. See Appendix for individual neurotic symptom of the Self-Reporting Questionnaire.

orginally interested in. This project was mounted to address the mental health needs of victims in developing countries by providing them mental health services through the primary care sector. Hence, our findings may not be generalizable to other population groups, but may be applicable to socioeconomically deprived victims elsewhere.

These observations emphasize two main points. First, there was a small number of victims who remained well in spite of the traumatic experience and the difficult socioeconomic conditions afterwards, with a striking paucity of emotional symptoms. Subsequent research needs to compare victims who are emotionally resilient with those who became emotionally distressed to ascertain the relative contribution to these two different outcomes of intrapsychic factors (e.g., character structure) or environmental variables (e.g., level of social support, intervening life-events). These future studies may provide important guidelines for developing individual or community-based mental health interventions for disaster victims, and for gaining a greater understanding of the role life-events have in relation to psychiatric disorders (McFarlane, 1985).

Second, the data indicate that while the prevalence of emotional distress increased in a 2-year period, the mean neurotic score, the most frequent neurotic symptoms, the strongest predictors of emotional distress, and the general symptom-profiles among victims remained stable. In comparing the emotional response of victims in Armero and Ecuador, we had observed these similarities (Lima *et al.*, 1989a), and had suggested the development of a uniform core curriculum for the mental health training of diaster and health workers in the first few months following the catastrophe. These observations at a 2-year follow-up further support and expand our initial suggestion: not only is there a consistent psychiatric symptomatology among emotionally disturbed victims of different disasters, but these symptoms seem to remain stable over a significant period of time.

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APPENDIX

Self-Reporting Questionnaire Neurotic Subscale

1. Do you often have headaches?
2. Is your appetite poor?

3. Do you sleep badly?
4. Are you easily frightened?
5. Do your hands shake?
6. Do you feel nervous, tense, or worried?
7. Is your digestion poor?
8. Do you have trouble thinking clearly?
9. Do you feel unhappy?
10. Do you cry more than usual?
11. Do you find it difficult to enjoy your daily activities?
12. Do you find it difficult to make decisions?
13. Is your daily work suffering?
14. Are you unable to play a useful part in life?
15. Have you lost interest in things?
16. Do you feel that you are a worthless person?
17. Has the thought of ending your life been in your mind?
18. Do you feel tired all the time?
19. Do you have uncomfortable feelings in your stomach?
20. Are you easily tired?

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