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THE PUBLIC RESPONSE TO THE 19 SEPTEMBER 1985 MEXICO CITY EARTHQUAKE*

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INTRODUCTION

In discussions of the social response to earthquakes, there are often two somewhat contradictory concerns. The first concern is often cast in terms of seeing earthquake "victims" as being victims, persons who need the help of others. Such assumptions about the passivity of victims often lead to discussions of the need for massive external manpower needs to assist earthquake victims. On the other hand, consistent, but not systematic observations of earthquake situations suggest that "victims" are a significant source of manpower needs in such disasters. That is, that much of the search and rescue and much of the immediate response to disaster is carried out by "victims" themselves, rather than by "organized" search and rescue or relief agencies, which often take some time to mobilize for action.

The opportunity to observe volunteer activity was presented in the Mexico City earthquake which occurred on September 19, 1985 when a stratified sample of Mexico City residents were surveyed as to their "helping" behavior during the earthquake.

Summary of Findings: The focus here is on "helping" behavior during the immediate post impact behavior and on what factors tend to differentiate those who participate in emergent, volunteer activity during disasters from those who do not undertake such helping behavior. During the first week of October, a survey was conducted of 567 respondents from the general Mexico City area. The respondents were 16 years of age or older, and the sample was stratified with respect to gender, age, and socioeconomic status. The sample of 567 is statistically representative with a margin of error of three percent. In addition to gathering considerable attitudinal data, the survey queries the respondents concerning their participation in earthquake-related, voluntary activities. Data were gathered on whether or not the respondent had engaged in any earthquake-related activities, the specific tasks undertaken, and the length of time that the respondent devoted to these tasks. Furthermore, each of the 567 respondents were also treated as informants. They were asked to provide information on the earthquake-related activities of every member of their household. Therefore, information is available on the extent and nature of voluntary activity for a total of 2,966 individuals.

The Magnitude of Voluntary Activity

The popular wisdom holds that the "mass assault" during the Mexico City earthquake of 1985 was of immense proportions. Mexican officials and citizens continue to point with pride and a degree of amazement at the outpouring of volunteer activity in the immediate post-impact period. This massive voluntary effort seemed to be verified by the sights and sounds of television news tape; around the world viewers saw massive emergent search and rescue activity.

How accurate is this image of massive volunteerism? Well, it depends upon how one views it. As can be observed in Table 1, of the 2,966 individuals about whom we have information, 290 or 9.8 percent engaged in any volunteer earthquake activity of any type at any time during the three weeks subsequent to the earthquake. Conversely, 90.2 percent of the sample

middle class fell to about 11.8 percent, and those within the lower class were only 6.2 percent (gamma = .431 P = <.001; r = .158, P = <.001). Also, men were more likely to participate than women. Among the 1,478 men, 195, or 13.2 percent, engaged in disaster activity. Only 95, 6.4 percent, of the 1,488 women were active (gamma = .382, P = <.001).

Age is also significantly related to participation. In this case, however, the relationship is curvilinear. The lowest rates of 1,108 participation are among those 17 years of age or younger. Of the 1,108 individuals in this age category, only 31 or 2.8 percent undertook any disaster-related tasks. Participation increased dramatically among those 18-29 years of age; 137 or 19.3 percent of the 790 individuals in this category volunteered. Volunteerism was also above average for those 30-44 years of age (80 individuals or 14.9 percent). Finally, the rate of participation decreased for those over 44 to 8.0 percent of the 528 individuals. This percentage, however, is still considerably above that for the youngest residents.

Finally, it can be observed that, except for those who lived a great distance from the destroyed areas, distance is not a significant differentiating factor. For those who lived in the impacted area, near the area, or at a moderate distance from the area between 14.7 percent and 15.9 percent participated. Among those who lived far from the devastation, 7.5 percent volunteered.

These findings indicate that, although participation in emergent disaster behavior during the Mexican earthquake was widespread among the various segments of the population, it tended to concentrate most among the upper and middle class, young adult to middle age, male population that resided in or relatively close to the impact zone. Consistent with these findings, it can be noted that data on education and occupation for the original 567 respondents were also gathered. There was no statistically significant relationship between occupation and volunteerism. However, education was positively related with participation in a statistically significant manner (see Table 2). Rates of participation among the 526 respondents for whom data were complete indicate that those with an incomplete secondary education or less volunteered at rates between 6.7 percent and 10.5 percent. However, among those with complete secondary education or preparatory education (either complete or incomplete) 23.2 percent participated. Finally, rates among those with professional and post graduate training were 32.7 percent (gamma = -.418, P = <.001; r = -.259, P = <.001).

In order to determine the independent effects of gender, socioeconomic status, age, location, occupation and education upon participation in earthquake activities, a regression analysis was performed on data gathered from the 523 respondents. The results are presented in Table 3.

It can be noted that location and occupation are not related in a statistically significant manner with participation. The remaining variables, however, are all significant. Thus, participation is positively related to socioeconomic status and education, although the latter appears to have the strongest independent influence. Similarly, sex is strongly related in that men were more likely to participate at the rate of about two to one than were women. Finally, age indicates a significant

engaged in no disaster tasks or volunteerism. On the one hand, the image of massive, emergent collective action seems to be questioned, as only about one in every ten Mexico City residents participated. On the other hand, one must consider the population base of Mexico City. Approximately 20,000,000 reside within the sampled area. Therefore, 9.8 percent represents over 1,960,000 volunteers, a rather massive response by any standard! Furthermore, it should be noted that these statistics refer to the total population of Mexico City and include all age groupings. If children under the age of 12 are excluded from the sample, the subsequent percentage of those volunteering increases to 12.4 percent, or almost one of every eight residents.

In addition, information was gathered on the length of time that the volunteers were engaged in disaster tasks. Of the 290 volunteers, 45.2 percent worked at least four days or longer. 17.6 percent worked at least 10 days or longer on earthquake tasks. When considering the number of hours worked, over 44.9 percent of the sample claimed to have worked at least 9 hours a day on earthquake activities, and 22.1 percent offered that they had worked at least 17 hours each day.

The Characteristics of the Volunteers

Information was gathered concerning the social characteristics of the volunteers. Once again, the common image is that the typical volunteer was a resident of the impacted area, poor, male, and young. Our data indicate that this common stereotype is incorrect in many ways. 46.2 percent of the volunteers came from middle class households, while an additional 19.8 percent resided in upper class homes. Only 34.0 percent were from the lowest socioeconomic level. Only 17.0 percent of the volunteers were from the immediately devastated area or the fringe area surrounding the destruction. About 53.7 percent resided far from the destruction. While about two of every three volunteers were men, those under 17 years of age only constituted 10.7 percent of the volunteer force.

In sum, these findings validate some impressions and call others into question. Certainly, massive volunteer activity occurred along a number of dimensions. Not only did an estimated 1,960,000 residents of Mexico City engage in disaster activities, but they worked long hours over many days. However, the stereotype of the typical volunteer is challenged by these data.

This information, however, cannot aid us in determining what factors separated the 290 volunteers from the 2,676 nonvolunteers. In other words, we still must ask, "What types of individuals were more likely to engage in earthquake activity?" An answer is provided in the following section.

Factors Related to Participation in Voluntary Activity

Table 1 presents data comparing the gender, age, socioeconomic status, and location of the volunteers and nonvolunteers. It may be noted that all the results are statistically significant, however, that significance probably results from the size of the sample rather than the magnitude of the observed patterns in the data. With regard to participation, socioeconomic status is positively related to volunteerism. Among the upper class, 25.2 percent participated. Participation rates among the

relationship. The equation is statistically significant.

In sum, analysis of the data on the subset of 523 respondents supports the findings from the broader sample. Although participation was widespread among all social classes and categories, it was most likely to be found among the more highly educated, higher socioeconomic status groups, among males, and among those 18-44 years of age.

Table 1: Factors Related to Volunteerism in the Mexico City Earthquake for All Reported Individuals

	Volunteers		Non-Volunteers	
	N	%	N	%
Total Sample	290	9.8	2676	90.2
Gender[a]				
Male	195	13.2	1283	86.8
Female	95	6.4	1393	93.6
Age[b]				
Under 12	3	0.5	645	99.5
13-17	28	6.1	432	93.9
18-29	137	17.3	653	82.7
30-44	80	14.9	458	85.1
Over 44	42	8.0	486	92.0
Location[c]				
Far	156	7.5	1915	92.5
Middle Distance	85	14.7	495	85.3
Near Fringe	37	15.9	196	84.1
In Damaged Zone	13	15.5	71	84.5
Socioeconomic Status[d]				
Upper Class	57	25.3	169	74.8
Middle Class	134	11.8	997	88.2
Lower Class	99	6.2	1510	93.8

[a]Chi Square = 38.403, P = <.001

[b]Chi Square = 138.412, P = <.001

[c]Chi Square = 39.641, P = <.001

[d]Chi Square = 91.676, P = <.001

Total N - 2966

Table 2: Percentage Comparisons for Volunteer and Non-Volunteer Categories by Levels of Education

Educational Level	Volunteers		Non-Volunteers	
		%		%
No Schooling		6.7		93.3
Primary incomplete		10.5		89.5
Primary School complete		6.0		94.0
Secondary Incomplete		9.1		90.9
Secondary Complete		17.8		82.2
Preparatory Incomplete		24.6		75.4
Preparatory Complete		28.3		71.6
Professional Incomplete		39.4		60.6
Professional Complete		27.9		72.1
Post Graduate		66.7		33.3
TOTAL	N 94	17.9	N 432	82.1

Chi Square = 47.608, P = <.001
Gamma = .440
r = .270

Table 3: Multiple Regression Analysis of Factors Related to Volunteer Participation During Mexico City Earthquake

Dependent Variable: Voluntarism on the Part of 523 Respondents					
Variable	r	r^b	b	$(b)^b$	t sig.
Location of House	-.147	-.080	-.092	.048	.055
Age	.097	.049	.053	.045	.239
Gender	.150	.128	.130	.042	.002
Occupation	-.044	.011	.012	.044	.790
Education	-.259	-.154	-.178	.048	.000
Socioeconomic Status	.209	.085	.109	.051	.042

^{b}r = Partial Correlation

^{b}b = Standard error of beta

Multiple R = .325

R Square = .106

F Ratio = 10.23757

P = <.001