VICTIMS, PRIMARY GROUPS AND COMMUNITIES

AFTER THE FRIULI EARTHQUAKE

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Introduction

The sequence of 435 earthquake shocks that occurred over a period of two years in Friuli, a northeastern Italian region, commenced on the night of May 6, 1976, with a severe tremor (4.5 Richter) followed one minute later by an even stronger one (6.4 Richter) which lasted almost one minute. The effects were devastating: 950 persons died and more than 2,500 were severely injured. Twelve thousand houses were destroyed, 25,000 were damaged, and 191 villages were razed to the ground. In analyzing the social response to this catastrohpe we can use the scheme suggested by Mileti, Drabek and Haas [1975] which includes behavior of individuals, groups, organizations, community, nation, and international systems in the phases of preparedness, warning, mobilization, immediate post-impact, relief, and reconstruction. Since the first three phases do not apply in this case, we will limit our analysis only to social responses in the phases of post-impact, relief, and reconstruction.

Immediate post-impact

Individuals

It is necessary to distinguish between the response of victims and non-victims. As regards the first group, the literature documents extensively such responses as an absence of panic, an initial narcotizing effect which temporarily prevents people from comprehending the event, altruism, gratitude for assistance, minimization of personal losses, concern for one's family, enthusiastic participation in first aid activities. Concerning the conditions under which the catastrophe occurs, these authors find that maximum social and psychological disruption will emerge from events characterized by: suddenness, high uncertainty, prolonged duration, broad scope of physical destruction, death, and injury particularly when the events occur at night [Mileti, Drabek and Haas 1975]. All these conditions characterized the Friuli earthquake. The only favorable condition appeared to be the less-severe

initial shock (4.5 Richter) which preceded the strongest one and in several cases served as an alarm.

A survey carried out by means of in-depth interviews of 80 residents in a town near the epicenter found that 50% of the persons surveyed did not stir at first because of inhibition, hindrance or previous experience. Only 12% immediately left their houses. Another 11% left their houses but returned immediately to rescue a member of the family or remained at home to switch off the TV set or to turn the water tap off. Behavior directly after the shock as reported in 74 interviews was as shown in Table 1. Altruistic behavior appeared to be twice as prevalent as self-oriented behavior. Other hypothesized behavior such as gratitude for assistance, minimization of personal loss, creation of little groups of "helpers" which form the phase that C.A. Chandessais [1975] defines as the "informal mass struggle" are confirmed by individual accounts, journalistic reports and participant observation.

Table 1

Survey Results Concerning Immediate Behavior
After First Tremor: Friuli, 1976

RESPONSE	NUMBER	PERCENT
Sought safety alone, in presence of others	16	21.6
Sought to save self and children in presence of others	16	21.6
Sought to save self and assist others	15	20.3
Too astonished to act	22	29.7
Fled or tried to escape	5	6.8
	74	100.0

The literature concerning the behavior of non-victims indicates that persons learning of a nearby disaster tend to be curious, wonder about the involvement of kin and friends and will very likely go to the stricken area [Fritz 1968]. Once there, they seek ways to help. If they cannot assume the role of helper, they feel frustrated. In these moments, class, race, rank and age differences fade out, while role conflicts may arise in choosing which group to assist: family, kin, friends, neighbors or strangers. All such hypothesized behavior was confirmed by observation and journalistic reports. In the Friuli earthquake the phenomenon of volunteers was especially prevalent. These were mostly young people who converged from all over Central and Northern Italy [Moretti 1980].

Organizations

Various organizations, frequently uncoordinated tend to converge on the site of a disaster. Among these are firemen and military organizations, which possess a more effective degree of response to disasters than civilian organizations because they have equipment essential to deal with emergency situations, their personnel have had a specific training, hierarchical relationships are precisely defined, and they have an efficient communications network [Tellia 1978]. In Friuli the intervention of the military organizations was massive and timely, because more than half of the active Italian Army is stationed in this border region. Specialized detachments sent by foreign armies, especially the Germans, created a strong impression of efficiency.

Community

One of the main findings of disaster research is that the initial reaction to a disaster is characterized by a massive response of individuals, groups and organizations that at first tend to act in an uncoordinated way and can result in a chaotic convergence of persons, material and information. The centripetal movements exceed both in quality and quantity the centrifugal ones. Some communities seem to respond better than others. The explanatory variable appears to be prior emergency experience or preparation. The earthquake of May 6, 1976, also affected some villages in Yugoslavia where a community organization exists that has been trained to deal with emergency situations. Certain accounts indicate the immediate Yugoslav response was better able to handle the demands imposed by the disaster situation [Orožen Adamič 1980]. However, the damage there was less and the stricken area was much more limited.

Barton [1970] states that disaster situations create an overload of problems local governments are often unable to handle, and they must be replaced by an emergency government that acts as an overriding coordinating superstructure. On May 7 the Central Government appointed a "Commissario Straordinario" who took charge of the direction of the relief effort until July 25.

A generalized finding of research on human behavior after catastrohpes is that there tends to be a decrease in conflict. According to Dynes and Quarantelli [1971], this happens because: 1) the precipitating event is outside the community system, 2) a consensus on a hierarchy of values quickly emerges within the community, 3) emergency period problems require immediate and obvious action, 4) disasters produce an orientation to the present which minimizes previous memories of and future opportunities for conflict, 5) disasters reduce status differences, 6) disasters tend to strengthen community identity. The reduction of conflict in Friuli is reported by interviews with children. A decrease of parochialism is also reported as is a rising sense of ethnic awareness. Along with the decreases in conflict the author and participant observers recorded a growth in internal solidarity that gave rise to an altruistic attitude resulting in cooperation and mutual help [Wolfenstein 1957] [Taylor et al. 1970].

Restoration

In the restoration phase people try to regain acceptable conditions of life and to re-establish the exercise of the essential functions of an organized life [Barbina 1976]. In this phase the damage to infrastructure, houses, economic structures, artistic heritage and so on are evaluated and indemnities are fixed. People try to salvage all that can be recovered. Tottering buildings are buttressed or demolished. Immediate relief organizations start to leave the zone. The length of this phase, also, varies according to the severity of the catastrophe, the response capability of the stricken population and the efficiency of the local authorities. We can distinguish between the behavior of victims and organizations.

Victims

The restoration phase is very delicate both from the psychological point of view, since phenomena of depression and discouragement may arise, and from the social point of view, since anomic and apathetic attitudes may develop. Symptoms of such aspects in Friuli were increases in admissions to mental hospitals, in suicides, and in the abuse of alcoholic beverages.

The destruction or extensive damage of dwellings leaves many families without shelter and makes necessary temporary housing or, when possible, refuge in the homes of friends or relatives. According to information obtained from a survey of evacuated children [Cattarinussi 1978], the solutions to housing problems during the summer of 1976 were as shown in Table 2. The earthquake and numerous aftershocks caused strong feelings of claustrophobia and a sense of insecurity in structures. Consequently many individuals whose homes were barely damaged or absolutely intact preferred to sleep in the open.

The possibility of looting abandoned buildings and evacuated areas after a disaster is a major concern. However, Dynes and Quarantelli report the number of looting cases is usually very limited. This was the case in Friuli. Only four thieves, who had come from outside the region, were discovered.

Efforts to gain relief aid fraudulently might be considered a form of looting. Drabek notes that the frequency of such phenomena and the tactics used are hardly mentioned in previous research findings. There is some quantifiable evidence from Friuli in connection with claims for damages due to the loss of furniture and fittings. According to Prefecture officials, there were about a hundred contested cases among the 16,000 claims in which the claimed damage was nearly double the actual loss. The questionnaire used for a survey carried out by interviews of shopkeepers and innkeepers of six villages destroyed by the earthquake compared the amount of damages to the premises, equipment and supplies as claimed by the shopkeepers and innkeepers and as ascertained by committees of the Chamber of Commerce. Of a total of 288 shops and inns, 8% claimed damage greater than that which was ascertained [Sambri 1979].

The Repetition of the Earthquake

The rather exceptional phenomenon of the repetition of the earthquake after an interval of four months took place in Friuli. On September 15 there were two strong shocks at 5:15 a.m. (6.0 Richter) and

Table 2

Temporary Shelter Used by Families
Friuli, 1976

TYPE OF SHELTER	NUMBER	PERCENT
Home	47	17.5
Tent	126	47.0
Garage	12	4.5
Home and Tent	45	16.8
Trailer	8	3.0
Car and Home	2	0.8
Cabin	4	1.5
Home and Hut	3	1.1
Home, Tent and Hut	21	7.8
TOTAL	268	100.0

Source: Cattarinussi, 1978.

at 11:23 a.m. (6.2 Richter), with epicenters somewhat to the north of those in May. The shocks further damaged the communities that for four months had been living in uncomfortable conditions and suffering a very large number of minor aftershocks. During this period, a great deal of psychological energy had been used up in order to adjust to new situations and to restore social and psychological balances. In September no more reserves of moral force were left, and the responses were, therefore, very different from the individual and social reactions of May. People fled the encampments as huge rocks tumbled down the mountains. Thousands of "restorable" buildings, to which people had already returned, collapsed; other homes shattered before the amazed eyes of those who had repaired them during the summer; scaffolding and bracing revealed its uselessness. Car-mounted loudspeakers urged people to leave the area and retreat to the Upper Adriatic resorts and added to the sense of impending cataclysms of still larger magnitude.

The Evacuation

The unexpected repetition of the seismic phenomenon caused the recall of the "Commissario Straordinario", who organized the evacuation of the homeless to the beaches of the Upper Adriatic Sea and devoted himself, with the Regione Friuli-Venezia Giulia, to the construction of prefabricated villages. As many as 32,500 individuals left the area. The number of evacuees over time is shown in Figure 1.

Figure 2 shows the motivations for evacuation identified by a sample of 241 persons interviewed in a town on the Upper Adriatic Sea [Boileau 1977]. The unsatisfactory living conditions of the temporary shelters were the chief reason.

Organizations

While part of the population was evacuated, the restoration activities such as barracks construction began again and were completed

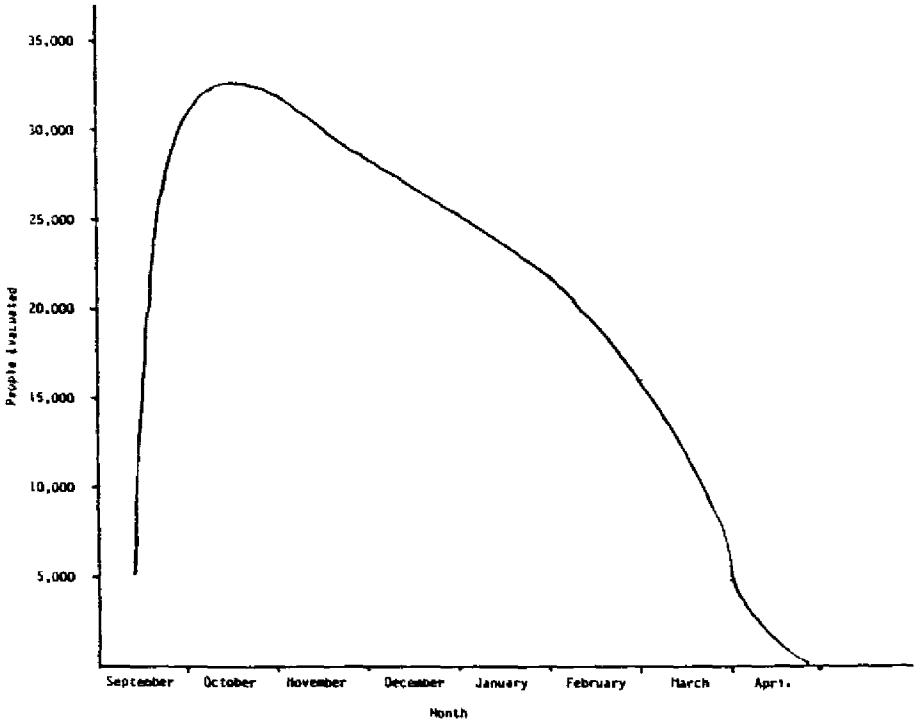

Figure 1

Number of People Evacuated by Month: Friuli, 1976-1977

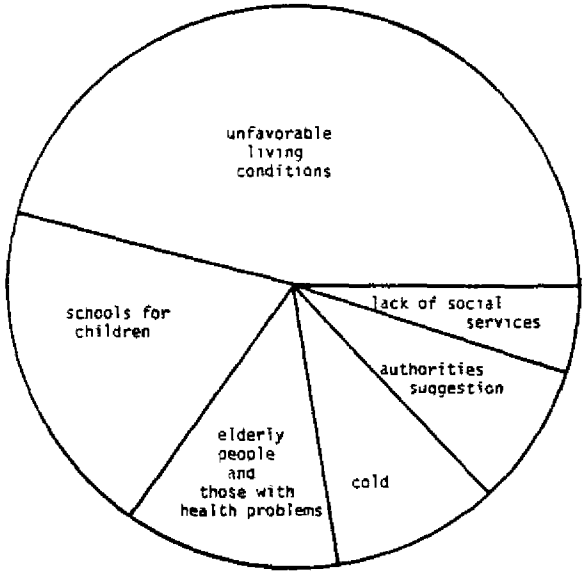

Figure 2

Motivation for Evacuation:
Friuli, 1976-1977

Source: Boileau, 1978.

by Spring 1977. During the first year after the May earthquake a number of organizations operated in Friuli. Figure 3 shows the opinion of these organizations expressed by a sample of 434 workers from 19 damaged factories [Cattarinussi, 1978]. Various levels of the government were perceived to have performed the least well. The Italian and foreign armies, the Red Cross, the Firemen and the Alpini Association were felt to have functioned best.

International Solidarity

The data on financial assistance from foreign nations to Friuli are shown in Table 3. They are drawn from the documents of the "Commissariato Straordinario del Governo" and completed by those of the Red Cross, the Charitas Internationalis and the "Ente Friuli nel Mondo". The generous financial aid of several European countries is explained by geographical proximity (Austria and Yugoslavia) and by a long tradition of Friulian emigration (Switzerland, Germany, Luxemburg and Belgium). Emigration also can explain the aid from Canada, Australia, and Venezuela. For the U.S.A. there is also the factor of the economic and political partnership with Italy [Delli Zotti 1978].

Reconstruction

The reconstruction phase that started one year after the first earthquake probably shows aspects of the response more clearly than the earlier phases, since the socio-structural characteristics of stricken communities and the socio-cultural features of the population become more relevant over the long term.

Among the socio-structural features we can consider demographic restabilization and economic aspects. The geographer G. Valussi has analyzed the former by looking at the demographic dynamics of the 45 Friulian communes most heavily struck by the 1976 earthquake. They are characterized by a steady return of migrant workers since 1971, mainly due to the European economic recession. The balance between registrations and cancellations at the registry offices in 1972 was 6.3%; in 1973, 8.7%, in 1974, 7.1%; in 1975, 5.2%. In 1976 the balance collapsed to 0.9%, but in 1977 it rose again to 4.9%.

If we examine the population movements by months for 1976, we notice that departures prevail in June, while arrivals highly preponderate in July and August. After September cancellations increase considerably and exceed registrations until April. In the ensuing months registrations are more numerous than cancellations, and at the end of 1977, they surpass the levels of 1975.

Concerning the economy, analysis of the industrial [D'Angiolini, 1979], artisan [Nodari, 1979] and trading [Sambri, 1979] sectors indicates that the speedy use of the available financial sources permitted rapid economic re-stabilization, both in terms of employment and in level of production. Other research on the industrial sector [Regione, 1977], shows that there was no decrease in employment and furthermore a 10% increase was expected by most manufacturers over the next three years (1978-80).

Another study carried out two years after the earthquake of a sample of 62 factories [Gottschalt 1980] found that the area near the epicenter

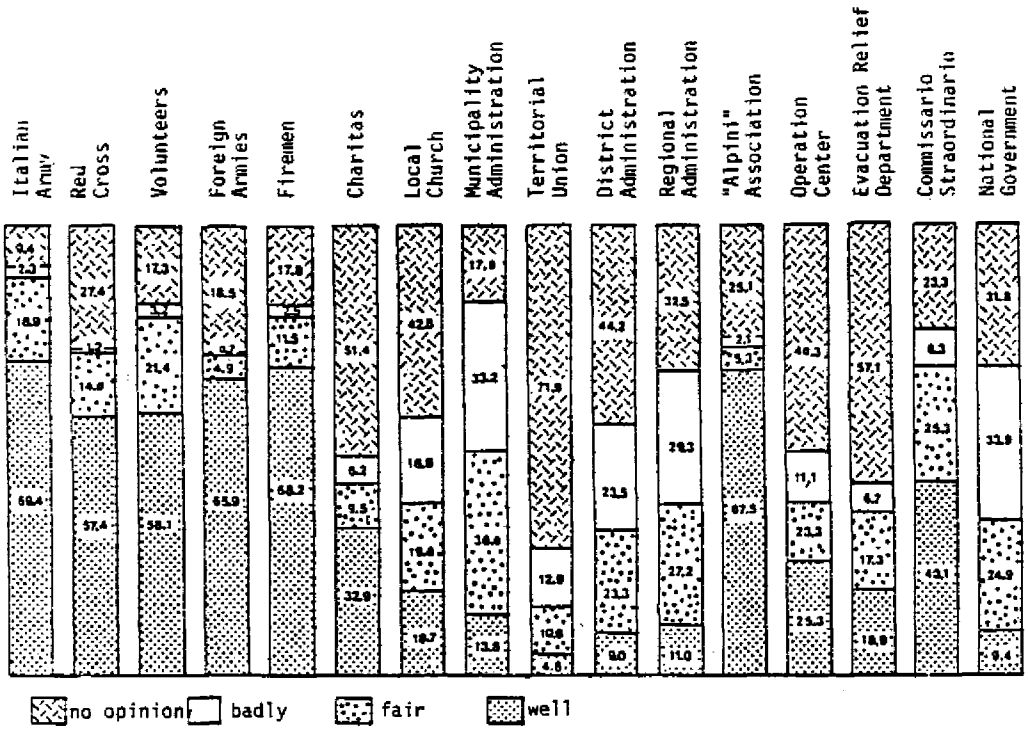

Figure 3

Evaluation of the Behavior of Organizations and Officials

TABLE 3

International Assistance: Friuli, 1976

NATION	TOTAL (It.lire)	TOTAL/POP (1972)	TOTAL x 1000/GNP (1972)
S. Marino	80,000,000	4210.52	--
Austria	9,596,020,000	1251.54	612.86
Yugoslavia	3,471,294,000	165.64	243.24
Switzerland	3,655,000,000	568.34	173.94
Norway	668,181,000	170.94	60.62
W. Germany	5,740,347,000	84.78	32.31
Luxemburg	28,000,000	79.77	29.41
Belgium	452,892,000	34.11	12.55
France	575,486,000	11.03	3.61
Great Britain	330,322,000	5.90	2.58
Holland	18,915,000	1.40	0.58
Saudi Arabia	4,325,000,000	512.25	1223.13
Canada	3,424,139,000	154.76	41.49
Australia	1,186,568,000	90.35	36.10
USA	24,142,685,000	114.74	24.32
Venezuela	171,000,000	15.15	14.55
New Zealand	40,450,000	13.65	6.41
Brazil	200,000,000	1.97	4.52
Iran	43,250,000	1.38	3.34
Tunisia	4,591,000	0.90	2.85
South Africa	30,520,000	1.25	1.76

experienced a particularly strong wave of expansionary investment which clearly indicates a positive economic response by entrepreneurs. The large investments made in the stricken area led to an absolute growth of jobs, which not only succeeded in warding off the danger of out-migration, but acted as an attraction for Friulian migrants.

A sample of 900 people was interviewed four years after the earthquake [Cattarinussi, Moretti, Tellia, 1981]. Most believed that the disaster induced economic development in the stricken areas. Indeed, 60.3% of the sample believed that in the post-seismic period there was an improvement in economic conditions and 77.1% believed that employment opportunities had increased. However, a strengthening of the industrial structure was evident only in some municipalities--those that

already had a high level of industrialization before. On the contrary in other municipalities that had had a lower level of industrialization the situation worsened. As for trade establishments, most of them resumed their activity after a period of interruption of variable length.

From the urbanistic point of view the tendency to reconstruct the Friulian region "where it was and as it was" prevailed over other innovative but perhaps less realistic proposals. The choice in the reconstruction was the reaffirmation of the anthropo-geographic design existing before the earthquake. The volumetric relations among the urban spaces were reproduced [Nimis 1978].

In the political sphere no substantial change in the electoral choices were apparent in Friuli after the earthquake. This stable trend is shown by analysis of both before and after earthquake polls [Tellia, 1981] and the answers to two specific questions in the already cited research on long-term effects [Cattarinussi, Moretti, Tellia, 1981]. Other research, conducted by interviewing mayors in the stricken area, indicated that the decision making process has become more personalized. From this same research it appears that local administrators are much more highly valued than the central government and fellow citizens.

Socio-cultural changes were induced by the earthquake. This was revealed through the opinions of the sample of people interviewed in the course of the research on long-term disaster effects cited above. Respondents were asked to choose which of the following items reflected their opinion:

1) The earthquake resulted in some positive consequences.

2) No changes at all were induced by the earthquake.

3) Hardships and worries resulted from the earthquake but they were only temporary.

4) After the earthquake one's whole life-style changed for the worse and will continue so for a long time.

Almost half the sample (48.6%) selected item 3. A quarter (24.9%) chose item 4 revealing a pessimistic view of life after the catastrophe. The remaining fifth of the sample (19.6%) perceived the existence of some positive consequences of the disaster. Males, younger people and those with higher social status tended to have a more positive outlook.

Regarding physical health, almost half the sample reported a worsening. General psychic conditions were felt to be deteriorating as well (45.3%) mainly by women and older people. Personal contentment, together with family economic security ($r=.25$) is positively correlated with self-reliance ($r=.35$) and with the perception of contentment on the part of neighbors and fellow citizens ($r=.24$). Improved physical and psychical conditions are positively correlated with an active attitude towards work ($r=24$; $r=21$) and with a satisfactory sexual life ($r=.18$; $r=.21$). A rather contented atmosphere seemed to be prevalent in most families, but some intra-family relations were deteriorating because of the complex problems linked to the process of reconstruction. It appears that portion of the sample that claimed to suffer from

difficulties in the rebuilding process (costs and town planning restrictions) also reported that family relations often broke down and that quarrels increased after the earthquake (r=.17). This response was more frequent on the part of families living in barracks.

By examining correlation coefficients we tried to draw up a typology, i.e., to identify social types as characterized by the presence of a set of elements.

a) Relations to the environment: "isolated" and "involved" people ("misanthropes" and "social" individuals).

The misanthrope, an isolated person with no family, neighboring, and community relations, has been defined in terms of interactions with their milieu of the people interviewed.

These types were identified by the variables "family help" (little help given to or received by one or more relatives), "neighborly interaction" (little or no confidence in neighbors), "misanthropy" (no wish to see other people), and finally "community involvement" (interest in civic affairs decreased since 1976). The emerging character of the "solitary" is not at all common within the sample: only 12 people (1.3%) possess all four traits, and rather few (86 or 9.6%) possess three.

Few people indeed seem to be far from a "normal" state, and it appears that the traditional stereotype of the Friulian as individualistic, peerish, isolated, has to be rejected. On the other hand, the opposite image does not appear clearly either. The "social individuals" the exact reverse of the former were also very few: only 13 equivalent to 1.4%. These can also be labelled as "involved people": get and give help from and to most relatives, feel that most neighbors are reliable, never wish to remain alone, are more interested in what is happening around them now than in 1976.

b) The personal state: "anxious" and "miserable" people.

Such types have been singled out by combining internal and external traits of the individual's personal situation. The anxious individuals are those experiencing hostility and irritability, are unable to cope with the earthquake aftershocks, and feel insecure in their dwellings. 145 people can be so defined equivalent to 16.1% of the sample, the highest percentage among those identifying a "type". Among them, 47 individuals (5.2%) are the most anxious.

The miserable people are characterized by a wide range of negative traits. They live in barracks, had their houses destroyed or badly damaged and are not planning to rebuild them. Moreover they have been feeling worse both physically and psychically since 1976, have lower educations and incomes, are aged 55 and over. Only 52 people, however, (5.8), can be so defined. Very often the miserable people are anxious as well. Indeed the same individuals tend to score very high on both miserableness and anxiety scales.

c) The perception of the situation: "pessimists", "complainers", "optimists".

These types were identified on the basis of the questions relative to the economic and social situation, local, national and personal. The first type, the pessimistic individual, includes those who think that, since 1976, the Friulian economy has worsened, alcoholism, crime, drug abuse have increased, the whole situation has deteriorated irremediably. There are few of these people (24 = 2.6%) but their number increases to 13.5% if we leave out the variable relative to economic development. Indeed very few believe that there was no economic improvement at all.

The second character is the "complainer" who believes that government's and the administrators', and fellow citizens' ability and honesty have decreased since 1976, and that the reconstruction process is behind schedule and inefficient. The tendency to complain is present in only 9.6% of the sample, and it is usually unrelated to objective situations of misfortune.

Finally the "optimists" are those who are more willing to be active, feel self-confident, have positive expectations for the future: those who maintain the economic situation has improved both in their families and in Friuli, single out some positive consequences of the earthquake, who believe the reconstruction process is going rather well. As with fully unhappy people, fully happy and optimistic people are very rare. Indeed only 18 individuals (2%) were so classified, fewer than the complainers, and fewer than the miserable people.

The Friuli earthquake presented a unique research opportunity for study of social responses to a disaster because of the double event of two major seismic shocks, four months apart. The reaction to the first event very much resembled cases well documented in the literature. The second event was particularly devastating from a social and psychological point of view because it destroyed so much of the reconstruction efforts which had been made during the four months after the first shock. While the immediate effects were severe, it is remarkable under the circumstances that the long-term effects have been so moderate. Those individuals who severely suffered the most psychologically and socially tend to be late middle-aged and elderly, females and those of lower socio-economic status. The most resilient individuals tended to be males in younger labor force age groups, the young, better educated and those with higher incomes. The restoration of the economic system was amazingly rapid, the attitudes toward communities and the region optimistic and the effects as reflected in changed political behavior minimal. The long-term effects seem to confirm earlier studies but distinct patterns emerge related to demographic characteristics.

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