Working Paper

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# AN OVERVIEW OF RESEARCH ON PTSD IN SURVIVORS OF DISASTERS

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Let me start out with three simple points, and then go on to indicate some complexities in each point.

The first point is that disasters, generally speaking, do not result in severe mental health consequences, whether looked at in the short run or the long run. In my view, the empirical evidence from the fairly extensive research conducted on disaster phenomena in the last 30 years strongly supports this conclusion.

The second point, however, and it is an important however, is that I am primarily talking of community type disasters and behaviorally dysfunctional mental health consequences. Some of those who talk about the negative results of disasters, are neither talking about the same kind of stressful social happening we have just referred to as community type disasters, nor are they referring to the same kind of post-disaster effects we have just referred to as behavioral dysfunctional mental health consequences.

Finally, our third point is that even if it is granted we are correct in our view that disasters generally do not result in severe mental health consequences, it does not follow that there always is no need for psychological or crisis counseling, or the delivery of mental health services at least in the broad sense of the term. The general absence of negative consequences does not mean that there may not be specific cases requiring assistance. Services are also sometimes needed because while the disaster agent may not generate psychological problems, the relief effort directed at victims, may create a situation more damagingly stressful than the actual disaster experience itself. Furthermore, there are non-community type disasters which may produce severe psychological effects in survivors, and there is strong reason to suspect that first responders, the initial

rescuers in certain kinds of disaster situations may indeed have strong negative post-disaster reactions far exceeding anything exhibited by the more direct disaster victims.

I want now to elaborate on some the complexities obscured in making these three simple points, namely (1) that disasters generally do not result in negative short or long run major mental health consequences; (2) that this first general proposition is most applicable to community type disasters and behavioral dysfunctionalities; and (3) that even accepting the first two points does not deny the need and usefulness for mental or crisis counseling services in a variety of different kinds of disaster situations. Stated another way, we are saying that disasters, as a whole, do not have major mental health effects but that this proposition has to be qualified. It is primarily applicable to negative behavioral consequences of community disasters and there is the additional qualification, that even if true, the general proposition does not necessarily deny the necessity of mental health services for specific kinds of particular situations and victims.

What kind of evidence do we have for the first general proposition? The evidence is not as good and direct as might ideally be desired, but it is one-sided enough to make us feel confident in asserting that disasters generally do not result in either major negative short run or long run mental health consequences. If we apply very strict criteria as to the research designs of studies and validity of data, we are on shakey grounds as to any conclusions, one way or the other. For example, I know of only two studies on the psychological effects of disasters which had pre-impact gathered data on the mental health status of the impacted population. Almost all work on the topic of mental health consequences of disasters is

dependent on after or post-impact gathered data, which obviously leaves some questions about the interpretations of any data obtained in such research. Post impact data is better than no data at all, but it is far from perfect.

On the other hand, the vast bulk of the direct and indirect research on the mental health consequences of disasters has consistently reached the same conclusion, namely that it is difficult to find post impact negative psychological and mental health effects which can be attributed to the direct experience of undergoing a disaster. The heart of this conclusion rests in about 15 major disasters in American society in which a substantial research effort was made to gather at least semi-systematic data on the psychological well-being and mental health-associated problems of the victim population. To give you a flavor of the variety of events studied, let me simply list them by name:

The Big Thompson flash flood in Colorado
The Buffalo Creek dam flood in West Virginia
The 1971 San Fernando, Los Angeles, California earthquake
The 1974 Monticello, Indiana tornado
The Mt. St. Helens volcanic eruption
The 1977 Omaha, Nebraska tornado
The Rapid City, North Dakota flash flood
The Rochester, Minnesota flood
The 1974 tornadoes and floods in the St. Louis metropolitan area
The Teton Dam collapse in Idaho
The Three Mile Island nuclear plant accident
The 1972 Topeka, Kansas tornado
The Wichita Falls, Oklahoma tornado
The Wilkes-Barre, Pennsylvania flood
The Xenia, Ohio tornado

Thus, we have studies done in places ranging from metropolitan areas to rural hamlets, all around the United States and subjected to a variety of disaster agents.

The studies of these various community disasters vary in their methodological rigor. We have among them, for example, a strict probability sample of 15 percent of a total impacted population, and self-selected samples of

victims who sought some kind of aid in other disasters. In some of the research, extensive data were obtained from combinations of open-ended interviews, psychological scale instruments, mental health case load documents, assessments of key informants, drug usage statistics, epidemiological surveys, suicide and divorce rates, etc.; in other studies only several questionnaire items dealt with mental health matters. However, despite the variety of data gathering instruments used and the samples obtained, the quality and quantity of the data approaches respectability. Certainly, it is substantially more defendable as acceptable data for research purposes than the anecdotes, scattered clinical and field impressions, and selective observations which passed for data up to about a decade ago.

Apart from these more systematic field studies, there are also about several dozen other field studies of disasters which have data relevant to the mental health question. In addition, we also have some systematic data on the providers of mental health services in some of these disasters, especially the local mental health community perception of disaster related psychological problems. I mentioned these additional studies because almost all the findings are consistent.

The research results are rather one-sided in terms of a general conclusion. In fact, if one leaves aside many of the reported observations from the Buffalo Creek disaster, which were primarily obtained in connection with a law suit and thus are suspect in the eyes of many other researchers, there is a high degree of consensus among all the studies. The disasters studied have not left in their wake masses of psychologically damaged victims. Survivors, who without question underwent extreme stress, show very few direct or indirect signs of negative effects from the disaster experience. In fact, leaving aside the almost complete absence of gross psychopathology,

it is difficult in many cases to find noticeable effects of any kind specifically attributable to the direct impact of the disaster agent.

Again, to give you a flavor of the findings, let me cite some of the findings from some very extensive field studies done in the aftermath of the Xenia tornado. Much of the Xenia data comes from two random samples of the population: a seven and a half percent sample studied six months after the disaster and a 15 percent sample studied 18 months after impact (the second sample, of course, included the original seven and a half percent in order to have longitudinal data).

To quote from a publication on the research carried out in Xenia 18 months after the tornado:

> The study found that there was an extremely low rate of severe mental illness, if any at all, as a consequence of the tornado. On the contrary, it concluded that a large percentage of the people had extremely positive reactions to the disaster. Eighty-four percent of the people claimed that their experiences had shown them they could handle crises better than they thought; and 69 percent reported that they felt they had met a great challenge and were better off for it. ...Changes in the quality of social relationships are often thought to be related to changes in emotional well-being. Yet only two percent of the population admitted to worsening relationships with close friends and family after the tornado. Instead 27 percent claimed that such relationships had improved. Similarly, a mere three percent found their marital relationship less satisfying since the tornado, while 28 percent reported them to be, in fact, more satisfying.

In another report on the Xenia toradno the following is said:

> A year and a half later...only three percent of the population reported feeling at any time after the disaster that they might have a nervous breakdown. The proportion of those who did have such a fear and who reported that their symptoms actually interfered with routine social activities was insignificant. Only one percent of the population had considered suicide at any time after the tornado; only three percent reported any increase in drinking whereas seven percent of Xenians claimed they consumed less alcohol. There was a slight decrease in the percentage of the population who reported using tranquilizers, falling from 20 percent to

16 percent one year later, as did the use of any kind of service from any of the local mental health agencies which fell from 10 percent to 5 percent.

Of course, it can be argued that self reports cannot by fully trusted. However, the analysis done in Xenia found that behavioral indicators supported what victims had self reported. Consistent with interview remarks, there was no overall change in the marriage and divorce rates after the tornado. Agencies that provided treatment and hospitalization for serious psychiatric problems actually reported a decline in demand for their services. For example, the state hospital facility most likely to be used reported a 30 percent drop in admissions in the year following the tornado. Similar declines in demands for services was reported in other area agencies specializing in long-run clinical treatment through the use of psychotherapy, drugs, or hospitalization. There was a significant drop in liquor sales in the two state monopoly stores in the Xenia area in the six-twelve month period after the tornado.

There is no claim in the Xenia study or most studies that disasters have absolutely no psychological effects. For example, in the Xenia study

56% of those surveyed reported feeling depressed or low on occasion;
20% admitted being more nervous or excited some time after the tornado;
27% reported sleeping problems at times;
25% reported headaches; and
19% indicated some loss of appetite.

At a more behavioral level, 14 percent of those surveyed said they missed five or more days of work because of an emotional or mental health problem. There were also significant increases in the number of visits to the emergency room and outpatient clinic of the local hospital as well as in incidents involving traffic violations and juvenile delinquency. However, in order to put this in a proper context, we should note that when the victims were asked how they felt emotionally or mentally after the tornado, 58 percent said they

felt good or excellent, 33 percent said fair, and only 9 percent said their emotional or mental health was poor or very bad. Behaviorally, there were significant decreases in deaths due to heart, vascular, and respiratory diseases; actual number of offenses reported to the police; and in drug-and-alcohol-related case contacts by the local crisis center. There were no changes in suicide rates, overall death rates, domestic trouble calls to the police, or reports of child abuse.

These results are consistent with what other studies have found elsewhere. For example, a study of the Topeka tornado done three years after the event was able to match victim families and non-victim families for which pretornado data existed. It found that victim families rated their marriages as happier than before the tornado and as happier than non-victim families. Also, victim couples went out together more often after the tornado than before. Few families reported severe mental health problems or psychological difficulties attributed to the tornado.

A study of the Wilkes-Barre flood done three years after the event matched a flood and a non-flood control group, used the Gurin Symptom checklist, and found "both groups obtained high scores, indicative of positive mental health. The flood-group mean score was 71.0 out of a possible 80 points, while that of the non-flood group was 72.2" not a statistically significant difference.

In still another study conducted 18 months after the Rapid City flash flood, but one using primarily behavioral indicators, it was found that no significant increases occurred in the number of attempted or actual suicides or single car accidents (often considered suicide attempts); the rate of juvenile delinquency; the number of citations for driving while intoxicated; the number of automobile accidents; rates of scarlet fever, strep throat,

and hepatitis; the number of prescriptions written for tranquilizers; and the utilization of community mental health center services.

It would be misleading to imply all studies are as definitive on one-side as those I have cited. For instance, one study of Buffalo Creek concludes that "the psychological impact of the disaster has been so extensive that no one in Buffalo Creek has been unaffected." Another related report says "disabling psychiatric symptoms such as anxiety, depression, changes in character and lifestyle were evident more than two years after the disaster in better than 90 percent of our respondents." The reactions "were at the traumatic level and for so long that we must compare these syndromes, at least in structure and form, if not in content, to psychoses."

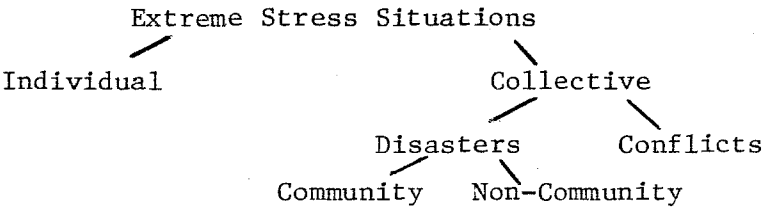
But this is a very atypical kind of research conclusion. More typical is the statement by a researcher who examined all the research undertaken on the psychological consequence of Three Mile Island--the most studied event of its kind. He concluded that such effects as surfaced were of a subclinical type, short-lived, and self-remitting, and "there are no scientific data which support the belief the accident produced measurable levels of gross psychopathology."

To summarize: A few students of the problem, a very small statistical minority of researchers, see the mental health effects of disasters as widespread, deep, persistent, long lasting, and dysfunctional, and that the consequences are as drastic and negative and quite similar to what can be seen in other individual and collective stress situations. The majority of students of the question only appear to agree that there are immediate widespread effects. Their position is that much of the reaction is surface, nonpersistent, of short duration, and not behaviorally dysfunctional. They further argue that possibly unlike in other kinds of individual and collective

stress situations, community disasters may often actually generate significant positive psychological effects.

Now to my second or qualifying point. We are primarily talking about community type disasters and about behaviorally dysfunctional mental health consequences.

One can subsume under disasters a variety of extreme stress situations such as the Holocaust, shipwrecks, air raids, famines, mass kidnappings, plane crashes, concentration camps, military combat service, etc., as well as natural disasters and technological accidents. From our perspective to categorize all of these situations as disasters obscures rather than clarifies. In our approach and most of the self designated scientific disaster research community, there is no attempt to deal with all stress situations, individual and collective, as one entity. Rather our focus is on collective stress situations, and within that category, on disasters, and within that class, on those of a community nature. We think it is both a theoretical and empirical mistake to fail to distinguish individual and collective stress situations, and within the latter category to fail to distinguish between conflict types of happenings such as wars and revolutions, civil disturbances and riots, terrorists and hostage taking attacks, etc., and disasters generated by natural and technological agents. In addition not all disasters, whether involving natural or technological agents disrupt communities, and as such there are disasters which are not community disasters (e.g., many transportation accidents such as the typical plane crash). In graphic terms we visualize the following:




I do not have time to explain the basic difference between these different types of stress situations, but let me simply say the distinctions revolve around whether they are conflict or consensus types of happenings, whether there are or are not psychological ties among the affected victims, and whether there are or are not social support systems in place after the stressful happenings. Our point here is that my earlier remarks on disaster consequences are mostly derived from and primarily applicable to one major type or kind of collective stress situation, namely the community type disaster. While all stressful situations undoubtedly share certain common elements, our interest and concern and focus is with only one major subtype of those kinds of situations, and it is doubtful that all the findings on community type disasters are applicable or generalizable to all other kinds of individual and collective stress situations.

Also, not only are we talking primarily of community type disasters, but our assessment of negative mental health consequences of disasters, puts more importance on overt behavior than on mental states. For example, in its 18 month longitudinal survey study of Xenia, the Disaster Research Center (DRC) found that in terms of scale scores on psychological well-being, those surveyed showed signs they had been affected by the tornado experience. Their scores were higher than a non-disaster control group, the scores generally remained as high in the 18th month as they were in the sixth month, and those who had suffered the most (loss of homes, etc.), had the highest scores. On the other hand, on almost all measures of a behavioral

nature whether reported by the surveyed population, the various community mental agencies, other community organizations, and also as reflected in a variety of statistics indicating personal and social problems, the post-impact figures were the same or below comparable pre-impact figures. DRC accepted this as evidence that the tornado had had little significant negative effects on the mental health of the affected population. What is crucial from this point of view is the lack of behavioral dysfunctionality; others approaches might lay greater importance on the existence of psychological states. To the extent one approach gives greater weight to behaviors and the other to psychic states, it is very possible inconsistent research results will be reported. However, we read the overall evidence as indicating that disasters generate very few behaviorally dysfunctional consequences; the picture is somewhat more mixed if focus is solely on psychological states.

Now, to conclude with my third point. Community disasters may not generally create severe mental health problems, but even if this is true, it does not follow that there are no problems of a mental health nature in the wake of disasters. As I have already indicated, there are at least three possibilities in terms of psychological vulnerabilities associated with disaster-like situations.

For one, there is a difference between what may be important from a research point of view and an applied point of view. The same statistics or numbers can be seen in a rather different light depending on the point of view involved. Thus, researchers are often concerned with reaching an understanding or explanation of the phenomena they study. To them, frequencies of a phenomena are often of some importance, but if the figures are low the empirical findings or observations may be of little descriptive

or analytical value. Let us take a hypothetical case and say that only one percent of a population suffered some psychological impairment of some kind as a direct or indirect result of a disaster. Such a low figure probably makes the phenomena of little importance for either statistical or substantive research purposes. With such a figure it might very well be possible to conclude that disasters, community or otherwise, do not generally result in severe mental health problems. This could very well be a true statement from a basic research viewpoint.

However, that one percent of the population might translate into 200 or 2,000 human beings. From the viewpoint of those victims, or from the viewpoint of mental health practitioners with an ideology of providing services for suffering people, the very low and statistically or theoretically unimportant one percent figure is irrelevant. From a professional and humanitarian perspective, even a handful of psychologically damaged people are worthwhile treating. I am sure most researchers, even those least convinced that disasters significantly affect mental health, would be willing to say that a major disaster could conceivably negatively impact a person here, a person there. The total numbers might be both absolutely and relatively few, and insignificant for theoretical or statistical purposes, but from the perspective of mental health practitioners even the few deserve and should receive help. Thus, even if our general proposition is basically correct, it is still possible to argue that even atypical and rare cases nonetheless require a professional response.
A parallel might be drawn to looting in disasters. In actual fact, looting is extremely rare and not a major social control problem. However, this is not the issue to an isolated household who might have suffered looting or the police who felt or who are blamed for not preventing that atypical

looting incident.

Also, while the overwhelming majority of people seem to cope well with the stresses associated with disasters, they are somewhat more vulnerable to the responses which occur after the disaster agent has already impacted. The disaster research literature often draws a distinction between agent generated and response generated demands of a disaster. This distinction tries to call attention to the fact that disaster victims may not necessarily and primarily react to the disaster agent; they may be reacting more instead to the post-impact setting and the response demands of organizations. There are two points involved in this. The first is, as one researcher has said, that the psychological consequences of disasters are "a function of a variety of factors, among which disaster impact is only one." The second point is that the social context in the post-impact period may be a far more stressful setting for victims than the emergency time period of direct impact.

Let me illustrate by two examples. In the Wilkes-Barre flood, about 20,000 people had to leave their homes for a long period of time because of a massive flood. The displacement forced evacuees out of their homes and disrupted their lives in many major ways, but even worse, an incredible amount of bureaucratic inefficiency forced many of them to break neighborhood ties and live in trailers which were very poorly suited to the area. One group of researchers found that for many households and individuals, greater social and psychological damage was occasioned by the "helpful" response of putting evacuees in unsuitable trailers in undesirable areas than was done by the disaster agent, the flood waters.

In another situation, the Buffalo Creek disaster, a social scientist looking at another massive relief effort said: "The end result insofar as

rehousing was concerned was what might be expected if a brilliant madman set about in the most ingenious ways to maximize personal and social pathologies." This was said of an effort in which millions of dollars were spent over several years by many well-intentioned agencies that did not know what they were doing, or perhaps worse, that thought they knew what they were doing.

Our point in citing these examples is to indicate that to focus solely on the disaster agent results in the omission of an often very important aspect of the situation, the organized attempt to respond to the occasion. In other words, the source of many common and widespread, although relatively unimportant post-disaster behavioral and psychological difficulties is the social setting in which post-disaster relief and recovery services are obtained. Efforts to obtain services frequently generate anger, concern, worry, and anxiety; and are what some have said are "secondary disasters" which are "produced by the socially organized response and in particular inequities in the distribution process." This is also illustrated in a Rapid City disaster study which concluded that while the flood did not engender a major community mental health crisis, it did result in an increase in stress for non-affluent victims. Group life in government-sponsored mobile home parks set up after the disaster was a source of stress and was probably detrimental to their natural helping networks. It was less the impact of the disaster itself which affected victims' psychological well-being but more the long-term impact of inefficient and ineffective federal relief efforts which accounted for the stress manifested by the victims. In the same vein is a researcher's conclusion that various stress experiences in the recovery period following the Wilkes-Barre flood were better predictors of mental health status as measured five years after

the events than the actual disaster impact. Even one of the more prominent writers on the Buffalo Creek disaster, accepts the idea that a "second disaster" by way of the post-impact relief efforts may have contributed substantially to the negative consequences for the victims.

In short, two disasters could be relatively similar in impacting victims. However, there might be drastic difference in how the post-impact relief and recovery period was handled. Thus, victims in one but not the other disaster might be subject to extreme stress which could result in negative mental health effects.

There is also the possibility that certain general categories in a victim population may be more at risk for post-impact psychological impairment than others. The aged or elderly are frequently mentioned as such a category. Although a recent review of all disaster studies of the aged says that "one point of agreement among the findings to date is that few if any long-term physical or mental health problems exist for the elderly," there are both theoretical and logical reasons to think that the research undertaken so far may not be conclusive.

Children are another category frequently named as a particularly disaster vulnerable population. The little research that exists seems to suggest that children are more likely to reflect the reactions of their parents than anything else. But even if only this is true, children may need post-disaster psychological help.

It is also believed that disaster victimization and bereavement is related to post-disaster mental health effects. That is, the more the loss in the disaster, the more likely there may be psychological difficulties. The little research which has directly addressed this relationship tends to be supportive of the hypothesis, but the evidence is far from clear or conclusive.

We also have already implied that non-community type disasters may generate more post-impact psychological problems than community disasters. For example, there are some indications that survivors of plane crashes, particularly crew members, often are psychologically impaired in varying degree by their traumatic experience. This is what might be expected: a plane crash does not generate a feeling among the survivors of having gone through together a very traumatic event; also, there is a parallel lack of social support in the post-impact period which is the opposite of what is found in a community type disaster.

Finally, there is strong anecdotal and clinical evidence that first responders may be the most psychologically impaired of all in disaster situations. There are a variety of reasons to expect this, including the fact that police, fire, and medical personnel who are generally the first outside helpers on the disaster scene, frequently have to deal with muti-lated, disfigured, or dismembered human beings. Such an experience, of handling the dead or the badly wounded, appears to usually go far beyond the psychological stress tolerance level of the average person.

Let me conclude my remarks with a cautionary example. We have presented our views on a particular topic in the disaster research area. We believe the views we have stated. However, there is much that puzzles us, and we are far from certain how much any of us really understand about the nature of disasters, the nature of mental health, and the relationship between the two. The latter particularly becomes problematical to us when we encounter observations such as the following. In the San Fernando earth-quake of 1971, the mental health center in a hosptial complex was very damaged with the two story building holding patients in locked ward collapsing into a one story structure. The 131 psychiatric patients responded "very

well;" they "seemed to react during the disaster with a great deal of stability,...attempting to help each other." In one case:

> One patient had been hospitalized a few hours before the earthquake, and was so hyperactive and uncontrollable that he was placed in restraints--a practice used only in extreme situations. At the time of the earthquake, a nurse disengaged his restraints, and told him that an 18-year old catatonic girl could not get out of the building without help, and it was up to him to direct her. He escorted her safely out, remained coherent for a few hours, then regressed.