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EXECUTIVE SUMMARY

A number of important conclusions and lessons emerged from the experiences of New Yorkers and the nation in coping with the events of September 11. Those attacks may not be the last terrorist action on U.S. soil. If the United States, along with other nations, is entering an age of terrorism, it is particularly important to take stock of the stresses these terrorist acts exerted on the population and of the effectiveness of the mental health response.

◆ The terrorist attacks shook the nation. Those directly affected, as well as others in the New York City area and throughout the nation, suffered symptoms of trauma. People who were directly affected by the attacks—those who were in the towers of the World Trade Center complex and survived the attacks, those who lost family members, those involved in the rescue, as well as those who lost jobs, homes, or possessions—were more likely to develop post-traumatic stress disorder (PTSD) than others in the general population.

◆ The substantial incidence of PTSD in those not directly affected is one of the surprising findings of the investigations of the effects of the September 11 attacks. Calculations put the number of New Yorkers with PTSD in the directly affected group at 460,000. The number of New Yorkers with PTSD among the population not directly affected is almost as large: 360,000, though of course this figure draws on a much larger pool of area residents.

◆ Symptoms cleared up over a six-month period for most individuals but persisted in a smaller group. The individuals for whom symptoms persisted were likely to be those whose lives were directly touched by the attacks.
Large proportions of symptomatic individuals—both children and adults—failed to receive mental health services. The nature of their symptoms suggested a need for mental health services, but, despite the availability of these services, the need was not met.

A significant proportion of New Yorkers had not heard of Project Liberty and the mental health services it offered, extensive publicity notwithstanding.

A high percentage of children saw a primary care physician in the six months following the attacks. This was especially true for symptomatic children, who generally saw a primary care physician even though they did not see a mental health professional.

It may be advisable for primary care physicians to screen for mental health disorders routinely after a disaster or terrorist attack. They could then refer severe cases to a mental health professional and treat the milder cases.

Funding, training, and procedures would need to be in place to make broad-based screening by primary care physicians possible. Funding under Federal Emergency Management Agency is not currently available for this purpose. Still, the evidence indicates that this would be an effective model for both identifying people in need of mental health services and working with the mental health system to deliver treatment to others.

**Introduction**

The terrorist attacks of September 11 were unprecedented in scope and horror in the United States. Other nations—Israel, the United Kingdom, and Sri Lanka—have experienced bombings and suicide attacks, but the United States had been spared a large-scale attack up until that point. All changed on that
September morning in 2001. At 8:46 A.M. an airplane slammed into the north tower of the World Trade Center. Seventeen minutes later a second plane hit the south tower. At 10:05 A.M. the south tower collapsed; at 10:28 A.M. the north tower fell. Suddenly, for many Americans, the feeling of security and safety was gone.

As the United States learned, acts of terrorism are not only intended to bring destruction to a specific target but also to reverberate widely among the population. Thus, with terrorism, in contrast to other tragic events, the psychological damage is broader and the victims more numerous. Some experts recognize this and refer to both the individual trauma to those people who experience personal, physical, or material losses and the collective trauma experienced by the community at large in the form of heightened distress, fear, or a collective loss of well-being.¹

Those who experience the trauma in person are, together with their families, sometimes called the “direct victims.” In the case of the September 11 attacks, these are people who suffered injury, trauma, property, or material loss or who lost family members or close friends. Most studies of disasters or traumatic events before September 11, 2001, have focused on the psychological effect of the trauma on these direct victims, with some research devoted to the effect on rescue workers. The response of the community at large—the “indirect” victims—has received less attention. However, because the psychological damage from terrorist attacks spreads beyond the direct victims and their families, it is important to assess the mental health effects on all whose lives are disrupted. Likewise, assessment of how mental health services are used following a catastrophe needs to include the population at large as well as those directly affected.

The mental health community in New York City was taken by surprise at the magnitude of the disaster. Because the September 11 attacks may not be the last terrorist assault on U.S. soil, it is important to take stock of what was learned and determine what modifications need to be made to prepare to respond to possible future attacks. This paper will explore the effect of September 11 on the mental health of both New Yorkers and the nation as
a whole and will examine the persistence of symptoms over time. Next, it will explore the organization of funding for mental health services, the actual services put in place, and the use of those services. Finally, it will report on lessons to be drawn from the experiences of professionals responding to the crisis and new policies that may need to be put in place to ensure a better-functioning response capability.

**Who Was Affected by the September 11 Attacks?**

Unlike natural disasters—such as tornadoes, hurricanes, or tsunamis—terrorist attacks deliberately take aim at a specific target. But at whom or what were the September 11 attacks directed? New York City and Washington, D.C., were the targets of the attacks, but, in a very real way, these attacks were directed at the United States and its major institutions as a whole. Subsequent attacks plausibly could be anywhere. Further, television coverage was immediate and graphic and brought horrific images of planes crashing into buildings into homes all over America. Broadcasts of the attacks gripped the nation. About half of the population nationwide watched eight or more hours of television reporting on the attacks in the days following September 11 (see Figure 1), while only 17 percent watched coverage for fewer than four hours.²

Many of the lessons about providing mental health services to a traumatized population can be learned from the response in the two cities that were hit. Officials in both cities had to evaluate the scope and range of needs and provide services on the fly, while the aftershocks of the disaster were still being felt. Most information in fact comes from New York because surveys monitoring demands for such services were begun immediately there. The monitoring efforts were not as thorough in Washington, D.C. In all likelihood, the findings in New York apply to Washington as well. In New York a substantial proportion of the population witnessed the attacks firsthand, and the pall of smoke from the ruins was visible to many others throughout the area for days. Homes and businesses
in the vicinity of the World Trade Center were damaged or destroyed. Schools and offices in the downtown district were evacuated. Large numbers of people fled for safety, fearing injury or death (see Figure 2, page 10). Schoolchildren could not be reunited with their parents for much of the day. Public transportation was disrupted throughout the city, and thousands had to walk long distances to reach their homes. In the days and weeks that followed, telephone and cell phone service was spotty. The economic repercussions in terms of lost jobs, slowed sales, and cancelled activities took hold in the weeks and months afterward, affecting the livelihoods of thousands of New Yorkers.

**FIGURE 1. TELEVISION BROUGHT THE SEPTEMBER 11 ATTACKS TO THE NATION**

Television watching hours about the attacks on September 11:

- Up to 1 hour: 2%
- 1–3 hours: 15%
- 4–7 hours: 34%
- 8–12 hours: 31%
- 13 or more hours: 18%


Through the medium of television, the attacks reached the rest of New Yorkers. Those who had been in proximity to the destruction or had seen the smoke could relive the day over and over through graphic television coverage; those who were further removed got an eyewitness account. Most New Yorkers reported that they saw televised pictures of the disaster more than daily during the first week after the attacks. More than 96 percent of the respondents saw
the image of an airplane hitting the World Trade Center, and half of these saw it more than thirty-six times. Scenes of buildings collapsing and people running away were seen by approximately 95 percent of the respondents, with half seeing these twenty-five times or more. Perhaps the most horrifying sight of all was that of people falling or jumping from windows. The networks were showing this footage initially but stopped early on because of the horror. However, approximately 60 percent of the respondents saw it before the networks stopped showing it, half of these seeing the video segment two times or more.

**Figure 2. Many New Yorkers Were Exposed to the Attacks**

![Bar chart](image)

Source: Sandro Galea et al., “Posttraumatic Stress Disorder in Manhattan, New York City, after the September 11th Terrorist Attacks,” *Journal of Urban Health* 79, no. 3 (September 2002): 340–53.

There are reasonably distinct groups of people who experienced different levels of exposure to the attacks, ranging from those who lost a family member to those who observed events only through television. The concentric circles in Figure 3 show ever-increasing levels of “exposure” to the attacks. The
central—and smallest—circle represents those most directly affected: those who witnessed the attacks, who lost family or friends in the attacks, or who were involved in the rescue effort. These individuals might be expected to suffer the most psychological distress. The next ring represents the 8 million adults and children living in New York City, and the outer ring represents the 290 million people in the nation as a whole.

**Figure 3. Level of Exposure to the Attacks**

Psychiatric literature shows that the effects of trauma are felt most strongly by direct victims and to a lesser degree by indirect or community victims. The next sections of this paper explore the effects of the September 11 attacks on each of the three groups. As will be shown, shock waves from the impact of the planes hitting the towers were felt nationwide, with New Yorkers suffering especially and those New Yorkers who were directly affected the most likely to exhibit symptoms of distress.

**Reactions by New Yorkers and the Nation as a Whole**

The terrorist attacks—along with the frightening prospect of future ones—shook the nation. A survey taken five to eight days after the attacks showed that people throughout the nation reported stress symptoms: 90 percent of
adults had one or more symptom to some degree, and 44 percent reported one or more symptoms categorized as substantial. Reactions included feeling upset when something prompted recall of the attacks, repeated disturbing memories of the attacks, having trouble concentrating, having trouble sleeping, and feeling irritable or having angry outbursts (see Figure 4).

Children as well as adults were affected: 35 percent of children experienced one or more substantial symptoms of stress, according to their parents. Almost half of the adults said that their child had been worrying about his or her safety or the safety of a loved one, no matter what the actual distance from the site of the attacks.3

However, as expected, psychological stress reactions were more intense in New York City than in other parts of the nation. Some reports put levels of post-traumatic stress disorder (PTSD) up to three times as high among New Yorkers as among people in other parts of the nation.4 Other studies showed that the closer one lived to New York City, the more likely one was to show signs of psychological distress. Figure 5 shows that 61 percent of those living within one hundred miles of the World Trade Center exhibited substantial stress reactions, compared to 36 percent of those living more than one thousand miles away.

## Reactions in New York City Immediately after the Attacks

A number of studies have examined the psychological impact of September 11 on individuals in the greater New York City area. The earliest study was conducted approximately one month after the attacks and focused on people living in the lower part of Manhattan (defined liberally as Manhattan below 110th Street). This area was selected to provide a rapid needs assessment of the residents most likely to be affected. In the study a random sample of 988 residents were contacted by telephone five to eight weeks after the attacks and asked a series of questions about their experiences the day of the attacks and the subsequent effects on their psychological and economic well-being.5
FIGURE 4. ADULTS AND CHILDREN NATIONWIDE EXPERIENCED SYMPTOMS OF STRESS


FIGURE 5. THOSE LIVING CLOSEST TO THE WORLD TRADE CENTER EXHIBITED THE GREATEST STRESS REACTIONS

POST-TRAUMATIC STRESS DISORDER AND MAJOR DEPRESSION

This study and others that would follow focused on two major psychological reactions to the attacks: post-traumatic stress disorder and major depression. The authors used the standard psychiatric method of assessing PTSD (see Box 1).

**Box 1. Assessing Post-Traumatic Stress Disorder Related to September 11**

To receive a diagnosis of PTSD related to a particular event, the individual needs both to have been exposed to a traumatic event and to have felt a sense of helplessness or horror. These are the so-called group A criteria. In the case of the September 11 terrorist attacks, many research teams have suggested that all residents of New York City may have met the criteria for exposure to a terrorist attack, given the pervasive nature of the attack and its media coverage that day and in the days immediately afterward. In addition there was a pervasive sense of helplessness and horror citywide, in watching the attacks unfold and in the uncertainty about other possible attacks at the same time.

In addition to meeting the “A” criteria, to receive a diagnosis of PTSD, individuals must have symptoms in three additional areas: reexperiencing, avoidance, and arousal, which are called in the psychiatric literature group B, C, and D criteria. Reexperiencing (group B) symptoms include such reactions as dreams or nightmares, flashbacks, and intrusive memories. Avoidance (group C) symptoms include avoidance of thoughts and feelings about the event, detachment, and avoidance of reminders. Arousal (group D) symptoms include insomnia, having difficulty concentrating, and being jumpy or easily startled. Individuals can have any or all of the symptoms, but a diagnosis of PTSD requires one symptom from group B, three symptoms from group C, and two symptoms from group D.*

To measure PTSD attributable to September 11, all reexperiencing symptoms and all content-specific avoidance symptoms had to be related to the September
11 attacks. A separate subset of avoidance symptoms and all the arousal symptoms need not be linked directly to the attacks except by time frame (occurrence within thirty days subsequent to the attacks). Participants were thus required to report at least one reexperiencing symptom specific to the attacks and at least three avoidance symptoms (content-specific where relevant or in the appropriate time frame) for a diagnosis of PTSD resulting from September 11.


Following the September 11 attacks, 8.8 percent of these New Yorkers (Manhattanites living below 110th Street) met the criteria for PTSD generally; 7.5 percent met criteria for PTSD specifically related to the attacks. Moreover, 9.7 percent experienced major depression since September 11. Overall, 14.3 percent of New Yorkers in the targeted area had either PTSD, major depression, or both, with considerable overlap between the two, as shown in Figure 6.

**FIGURE 6. PTSD AND DEPRESSION AFTER SEPTEMBER 11**

Among the respondents who lived in the vicinity of the World Trade Center (south of Canal Street) the prevalence of PTSD was much higher, at 20 percent.

**Psychological Distress that Does Not Reach the Level of PTSD**

Clinical PTSD and clinical-level depression are not the only indicators of distress. Symptoms may not reach the level of clinical disorder but may be significant nonetheless. Researchers have shown that trauma-related distress symptoms that do not meet the criteria for PTSD can impair functioning and significantly interfere with an individual's daily life in areas such as social and family functioning, work, and education. Similarly, other researchers stress the importance of recognizing significant distress that does not reach levels that qualify for a PTSD diagnosis following a disaster.

Studies after September 11, 2001, have reported that two to three times this many people had serious PTSD symptoms but did not meet the clinical definition of the disorder. Furthermore, Sandro Galea and colleagues reported that 57.8 percent of respondents reported at least one symptom of PTSD, echoing reports from nonrandom interviews that more than half of the respondents reported significant symptoms.

Figure 7 shows the proportion of New Yorkers who experienced one or more of the psychological reactions that together constitute PTSD approximately one month after the attacks. The most commonly reported symptoms were intrusive memories (27.4 percent), insomnia (24.5 percent), exaggerated startle response (23.6 percent), and a sense of foreshortened future (21.2 percent). Significantly, however, almost 35 percent had at least one reexperiencing symptom and thus met the criteria for group B; approximately 12 percent had three or more avoidance symptoms and thus met the criteria for group C; and approximately 27 percent had two or more arousal symptoms and thus met the criteria for group D.
FIGURE 7. MANY NEW YORKERS HAD ONE OR MORE INDIVIDUAL PTSD SYMPTOMS


SUBSTANCE USE AFTER SEPTEMBER 11

Studies also noted a jump in substance use in the month after the September 11 attacks. Almost one in three (28.8 percent) of the respondents reported an increase in use of cigarettes, alcohol, or marijuana. Most common was greater alcohol consumption—almost one in four (24.6 percent) New Yorkers registered an increase in alcohol consumption. In addition, 9.7 percent reported an increase in smoking, and 3.2 percent acknowledged an increase in marijuana use (see Figure 8, page 18). People who smoked cigarettes or marijuana more frequently were more likely to experience post-traumatic stress disorder than those who did not, and
depression was more common among those who stepped up their cigarette smoking, alcohol consumption, and marijuana use than among those who did not. Thus, the greater frequency of use of different substances was associated with PTSD and depression.

**FIGURE 8. ABOUT 1 IN 4 NEW YORKERS REPORTED INCREASING ALCOHOL CONSUMPTION AFTER SEPTEMBER 11**

![Bar chart showing the increased consumption of cigarettes, alcohol, and marijuana among Manhattan, New York, residents after the September 11th Terrorist Attacks.]

Source: David Vlahov et al., “Increased Use of Cigarettes, Alcohol, and Marijuana among Manhattan, New York, Residents after the September 11th Terrorist Attacks,” American Journal of Epidemiology 155, no. 11 (June 1, 2002): 988–96.

**REACTIONS OF CHILDREN**

The attacks began just before nine o’clock in the morning. Not surprisingly, then, most New York City children (91 percent) were in school or day care at the time, as shown in Figure 9. Children in schools in the immediate vicinity of the World Trade Center needed to evacuate their buildings and were well aware of the tragedy unfolding. Teachers and principals in other schools throughout the city needed to make decisions about whether to inform the students and, if so, how much to disclose, whether to tune into the television news, or even whether to close the school. Many teachers made the decision to inform their students of the attacks, thus, most children (64 percent) learned of them that way, while only 14 percent were told by a parent and 22 percent heard first from another source.
Children, like adults, experienced psychological distress after September 11. Gerry Fairbrother and colleagues reported that 18 percent of children in the New York City area had severe or very severe post-traumatic stress reactions, and 66 percent had “moderate” reactions (see Figure 10, page 20). Thus, the vast majority of children exhibited at least some symptoms of stress in the first several months following the attacks.

As with adults, level of exposure to the attacks, either through proximity to the site or through seeing graphic footage on television (particularly the image of people jumping from windows), was associated with severe or very severe post-traumatic stress reactions. For children, having a parent with PTSD or seeing a parent cry was associated with severe or very severe post-traumatic

Source: World Trade Center Survey, conducted by the New York Academy of Medicine, January and February 2002.
stress reactions. This study was not able to determine the precise nature of the relationship: perhaps both children and their parents were directly exposed to the attack, or perhaps—as prior studies have shown—psychological stress in one family member affects the entire family. Even though the cause is not clear, the fact that stress occurs in multiple family members may indicate the need to focus on the family in recovery efforts.

### Figure 10. Approximately 18 Percent of New York City Children Had Severe or Very Severe Post-Traumatic Stress Reactions Following the September 11 Attacks

![Pie chart showing stress reactions](chart.png)

Source: World Trade Center Survey, conducted by the New York Academy of Medicine, January and February 2002.

Six months after the September 11 attacks, Christina Hoven and colleagues assessed reactions of New York City public schoolchildren in grades four through twelve.\(^6\) This study is important because the assessments were done face to face with the school children, whereas the previous studies relied on parental reports of their children's symptoms in a telephone interview. As well, it assessed a variety of mental health problems, not just PTSD. Indeed, other disorders were more common than PTSD and depression. Specifically, the researchers discovered (see Figure 11) that 11 percent of the children met the criteria for PTSD, while 8 percent met criteria for major depression. The mental health problem experienced by most children was agoraphobia at 15

\(^6\) Gerry Fairbrother and Sandro Galea
percent, followed by separation anxiety at 12 percent and generalized anxiety disorder at 10 percent. Most compelling, one in four schoolchildren (27 percent) who met criteria for one or more of the psychiatric disorders assessed also revealed problems in day-to-day functioning. Moreover, these authors found that even higher proportions of children described experiencing a specific PTSD symptom, such as often thinking about the event (76 percent).

**FIGURE 11. PREVALENCE OF MENTAL HEALTH PROBLEMS (PROBABLE) FOLLOWING WTC ATTACK AMONG NYC PUBLIC SCHOOL STUDENTS, GRADES 4–12**

![Bar chart showing prevalence of mental health problems among NYC public school students.]


**PERSISTENCE OF SYMPTOMS OVER TIME**

Findings about immediate effects of the attacks indicate the level of mental health services needed and how quickly they need to be in place. Research
pointing out who is most likely to develop psychological distress has implications for the best ways to target services. Understanding how long symptoms persist and who has persistent symptoms also is important. Findings about persistence of symptoms give some guideposts regarding how long mental health services need to be in place and may offer signals about targeting as well.

**IN NEW YORK CITY**

Surveys assessing PTSD in the New York City population taken at one-month, four-month, and six-months intervals after September 11 show the trends over time. All three surveys were conducted over the telephone with randomly selected samples of New Yorkers. The authors included only recent symptoms related specifically to the September 11 attacks. While this methodology does not allow one to observe the progression of symptoms in the same group of people, it shows the degree to which PTSD specifically related to the attacks resolved or persisted in the overall population.

The authors followed trends in three groups: those who were directly affected by the September 11 attacks, people not directly affected by the attacks, and the total population, which includes the previous two groups. They reported on trends in PTSD prevalence and PTSD symptoms that did not reach the level of the full-blown (called subsyndromal PTSD). There was rapid decline in the proportion of people with either full-blown PTSD or subsyndromal PTSD between the first and the fourth month (see Figure 12). The decline continued for full-blown PTSD, and by the sixth month its prevalence had diminished to only 0.6 percent. However, there was an increase in subsyndromal PTSD among those directly affected in the sixth month, as symptoms began to resolve toward a less severe but still clinically important state.

The prevalence of symptoms was consistently higher among persons who were directly affected by the September 11 attacks than among those not directly affected. Still, a substantial number of the latter also met criteria for attack-related PTSD. Specifically, six months after September 11, approximately one-third of those who met the criteria for PTSD had not been directly affected by the attacks.
FIGURE 12. PREVALENCE OF PROBABLE PTSD AND SUBSYNDROMAL PTSD IN MANHATTAN SOUTH OF 110TH STREET DURING THE FIRST NINE MONTHS AFTER THE SEPTEMBER 11 TERRORIST ATTACKS

[Graph showing prevalence of PTSD and subsyndromal PTSD over time]

* All symptoms linked to the September 11 attacks where possible; all prevalences refer to current (previous 30-day) symptomatology. Vertical bars represent standard error.


THE GENERAL POPULATION WAS AFFECTED AS WELL

One of the surprises to emerge from the studies of the effects of the September 11 attacks was the large number of people in the population at large with PTSD. Most prior research and most counseling interventions had focused on those directly affected by a calamity, and for this reason the effects in the general population were not well known. In contrast, studies of the September 11 attacks examined the effects in both those directly affected and in the community at large. These studies show that, although the prevalence of PTSD is higher for the directly affected group than for the general population (12.0 versus 3.7 percent), the actual number of cases of PTSD in the population at large became substantial. In the first six
months approximately 460,000 people in the group directly affected by the attacks developed PTSD, but 360,000 people in the not directly affected group did so as well (see Box 2).

**Box 2. The Burden of PTSD was Great Among the General Population as Well**

In the New York metropolitan area, there are approximately 13,500,000 adults (2000 Census). We estimate that 28.3 percent of the region’s inhabitants could be considered directly affected by the attacks. In absolute terms, this means that approximately 3,820,500 people were directly affected and 9,679,500 were not. Findings from various studies suggest that the prevalence of PTSD in the first six months after September 11 was about:

- 6.0 percent overall in the area
- 12.0 percent in the directly affected group, and
- 3.7 percent in the not directly affected group.

Calculations then show that the net burden of PTSD in the directly affected group would be expected to be approximately 460,000 and in the not directly affected group, about 360,000. While this calculation is meant to be illustrative and not a definite assessment of the number of people who had stress disorder, it demonstrates that the new burden of psychopathology in the aftermath of a terrorist incident in a densely populated urban area may be as high among persons who are not directly affected by the disaster as it is among those who are.*

IN THE NATION

Examinations of trends in the nation as a whole also show rapid resolution of symptoms within the first six months for most of the population but persistence of problems in a smaller group of people. Researchers who followed a national probability sample of adults, surveying immediately afterward and at two and six months after the attacks, found that 16 percent of the U.S. population outside of New York City reported symptoms of post-traumatic stress related to the September 11 attacks two months later; this proportion had dropped to 5.8 percent four months after that. Significantly, researchers comparing psychological distress in New York City with other areas reported that, despite the higher rates of distress initially among New Yorkers, by November rates of persistent distress were similar across the country, in large communities and small.

Adults across the nation who were continuing to experience terrorism-related distress approximately two months later also reported disruption of their daily lives. For example, adults with persistent distress reported accomplishing less at work (65 percent), avoiding public gathering places (24 percent), or using alcohol, medications, or other drugs to relax, sleep, or feel better (38 percent) in the face of ongoing worries about terrorism.

Nationally, fearfulness also subsided in the months following September 11, but still substantial numbers of people remained frightened (see Figure 13, page 26). Two months after the attacks, nearly two-thirds of the sample (64.6 percent) admitted to fears of future terrorism “at least sometimes,” and 59.5 percent reported fear of harm to their families as a result of terrorism. Six months after attacks, fears of future terrorism were still present at least sometimes for 37.5 percent, and fear of harm to their families was expressed by 40.6 percent. The persistence of fear needs to be viewed in the context of the new threats that followed in rapid succession the attacks on the World Trade Center. Soon after September 11, a series of anthrax-laced letters were discovered in Washington, D.C., New York, and elsewhere. The residents of the Washington, D.C., area were subsequently horrified by a series of sniper attacks that claimed the lives of ten individuals. These may have been responsible for keeping fears alive throughout the nation during the subsequent months.
Figure 13. Fears subsided but persisted for some

![Bar chart showing fears over time]


Predictors of PTSD and Depression Initially and over Time

Evidence is mounting that individuals for whom PTSD and depression symptoms persist over time were more vulnerable in the first place because of other traumatic life experiences, for example. Researchers in New York and elsewhere (Israel, for example) have examined the characteristics associated with short-term and persistent PTSD and depression and have found important differences between them. In the short term after September 11, the predictors for developing PTSD were having had two or more stressful life events in the previous twelve months, having experienced a panic attack during or soon after the event, living below Canal Street (close to the World Trade Center site in Manhattan), and losing possessions during the attacks. In addition, Hispanics were more likely to receive a diagnosis of PTSD than were individuals of other races or ethnicities. It is unknown why this is, but the finding has been consistent across a number of studies. While prior stress, panic reactions, and Hispanic ethnicity also were predictive of depression, geographic residence and loss of possessions were not. In addition, circumstances that were not
related to PTSD, including low social support, loss of a friend or relative, or loss of a job, were significant predictors of depression.

Characteristics associated with persistent PTSD, on the other hand, were having low income; being divorced, separated, or widowed; experiencing other traumatic or stressful events before or after September 11, 2001; living below 14th Street in Manhattan; feeling afraid of injury or death on September 11; experiencing panic attacks on or since September 11; and being unemployed after September 11. Predictors of persistent depression over the follow-up period included having low income; being divorced, separated, or widowed; experiencing trauma or stressful events during the follow-up period; living below 14th Street in Manhattan; and experiencing panic attacks after September 11.

In sum, the predictors of persistent PTSD and depression included fewer demographic characteristics than the predictors of onset of PTSD in the immediate aftermath of the attacks and encompassed instead a range of subsequent trauma and stressful experiences. The differences are critical. Public mental health response systems were conditioned after September 11 to focus on persons who were most at risk of developing psychopathology. However, the changing profile of those showing symptoms of distress suggests that public health workers need to be sensitive to who is most vulnerable at any given period of time as well as flexible enough to provide appropriate mental health services even as the nature of the demand shifts.

**Mental Health Counseling Services for New York City**

Providing services to the large numbers of traumatized individuals was made possible through support from the Federal Emergency Management Agency (FEMA). On the day of the attacks, President Bush declared the five boroughs of New York City a federal disaster area, making them eligible
for FEMA assistance. Then, on September 28, the president expanded the disaster area to include ten surrounding counties where many New York City rescue workers and commuters lived, making these locales, too, eligible for FEMA programs. FEMA mental health services are delivered through the Crisis Counseling Assistance and Training Program, designed to handle the short-term mental health needs of communities affected by disasters.25

**Funding and Organization of Services**

The mental health community in New York City was taken by surprise on September 11 and was unprepared to respond to a disaster of such magnitude.26 In the days and weeks following, the psychiatrists, psychologists, social workers, and other mental health professionals mobilized and began offering services and training other clinicians to provide trauma-related services.27 Meanwhile, officials organized to apply for and use federal disaster relief funds.

Preliminary estimates of the need for mental health services indicated that approximately 520,000 persons in New York and the surrounding counties would experience post-traumatic stress disorder resulting from exposure to the attacks and that more than 129,000 would seek treatment for it during 2002.28 Based in part on these estimates, New York State's Office of Mental Health applied for and received $155.2 million from FEMA for crisis counseling during the year following the attacks.29

FEMA crisis counseling funds traditionally are limited to short-term counseling, brief supportive services, public education, and referrals to other services. Because of the heightened need and evidence of longer-term problems, the state Office of Mental Health subsequently requested that FEMA permit funds to be used for an expanded array of services to include evidence-based cognitive-behavioral interventions (such as interventions that are based on changing pathologic thoughts and behaviors) for trauma-related disorders.30
**PROJECT LIBERTY**

The massive program mounted with these funds was called Project Liberty. Its originators thought that unifying the services under a special name was needed for easy identification. They sought to distinguish the health services provided as part of the recovery effort from traditional mental health treatment to avoid the stigma sometimes associated with mental illnesses. The Project Liberty slogan used in advertising, “Feel Free to Feel Better,” also was intended to reduce stigma and to gain broader acceptance for its services.

Project Liberty was operational in New York City and surrounding counties by mid-October, just four to six weeks after the attacks, with more than one hundred mental health service agencies providing free public education and crisis counseling services. Publicity surrounding Project Liberty was substantial, with advertisements on buses, radio, and television. A Project Liberty hotline and Web site were made available as well.

**PROJECT LIBERTY SERVICES USED**

By the end of the first six months (through March 2002), Project Liberty had offered crisis counseling services to more than thirty-six thousand individuals. Most of them had just one session; some had more than one, for a total exceeding forty thousand service encounters.

The individuals served reported a range of reactions, as shown in Figure 14 (page 30), including sadness, anxiety or fear, irritability or anger, and trouble sleeping. In addition to those receiving crisis counseling services, large numbers of New Yorkers (more than fifty-four thousand) received group education sessions through Project Liberty. Ultimately, 1.2 million New Yorkers would receive Project Liberty services. Virtually all of these services (86 percent) were delivered within the community; approximately 9 percent of the people who came to Project Liberty were referred to the mental health system for further treatment. These individuals experienced about twice as many traumatic symptoms as did those not referred.
FIGURE 14. THERE WERE MORE THAN FORTY THOUSAND CRISIS SERVICE ENCOUNTERS IN THE FIRST SIX MONTHS OF PROJECT LIBERTY


HOW MANY NEW YORKERS HAD HEARD OF PROJECT LIBERTY?

However, despite intense publicity, only 24 percent of New Yorkers had heard of Project Liberty by January 2002, three months after its initiation. Two-thirds (66 percent) of the people who had heard of it had a good impression of the program, however. With steady publicity, by the one-year anniversary of the attacks 50 percent of New Yorkers had heard of Project Liberty.

Better-educated and higher-income individuals were more likely than others to have heard of the Project Liberty, but in spite of this disadvantaged New Yorkers were more likely to use the program. As shown in Figure 15, New Yorkers of racial or ethnic minority groups with less than a high school education were more apt to say they were “likely to call Project Liberty” than other groups.
FIGURE 15. ETHNIC MINORITIES AND THOSE WITH LOWER EDUCATIONAL ATTAINMENT WERE MORE WILLING TO USE THE PROJECT LIBERTY SERVICES


UNMET NEED FOR MENTAL HEALTH SERVICES

Despite the high levels of reported psychological distress and despite the widespread availability of services, the match between counseling and those who appeared to need it was surprisingly low for both adults and children. This was a troubling finding. It is important to understand the reasons for low levels of service utilization, particularly for symptomatic individuals, in order better to design outreach and screen in the event of a future terrorism crisis. Such reasons include but are not limited to the belief that other people may have greater need for help, the stigma associated with mental health services, a lack of awareness of the Project Liberty offerings, or misplaced concern about paying for the (free) services.
UNMET NEED AMONG ADULTS

By six months after the September 11 attacks, approximately 9 percent of the New York City population overall had received counseling from a mental health professional. Services through Project Liberty were available for anyone who desired them, not just those with a diagnosis of PTSD. One might expect that a large proportion of those individuals with symptoms would have sought out the available services. However, as shown in Figure 16, this was not the case: only 36 percent of those with PTSD or depression visited a professional for a mental health problem during the six-month period. Thus, even though persons with a probable diagnosis of PTSD or depression were more likely to seek professional care than were other respondents, a full 64 percent of those showing signs of disturbance did not receive any mental health services at the time. This finding is all the more surprising in light of the knowledge that 70 percent of respondents with PTSD also reported diminished functioning. Moreover, 85 percent of people who were directly affected by the attacks did not receive any mental health services in the six months after September 11, even though more than half (53 percent) of this group reported at least one symptom of PTSD or depression.39

FIGURE 16. ONLY A SMALL PROPORTION OF NEW YORKERS RECEIVED MENTAL HEALTH SERVICES, EVEN AMONG THE DIRECTLY AFFECTED

These findings were echoed by other researchers, who found that a surprisingly small proportion of individuals with severe symptoms obtained treatment. A full year after the attacks, the numbers of symptomatic people who had received counseling services were still low. Even more startling, there was very little use of mental health services after the attacks among people who were not already seeking care prior to September 11. Almost 90 percent of people with probable PTSD or depression who received counseling after the attacks already had done so beforehand.

**UNMET NEED AMONG CHILDREN**

Even more surprisingly, the striking finding concerning low service demand among symptomatic adults also held true for children. Adults generally must seek their own care services out, and they could have a variety of reasons for not availing themselves of needed services. In contrast, schoolchildren are in a supervised setting where problems can be observed and referrals to care made.

By January 2002, four months after the attacks, 10 percent of children citywide had received some sort of counseling, most of it in the schools (44 percent) or through a mental health professional (36 percent). About half of the children who received services had severe or very severe post-traumatic stress reactions symptoms, while the other half experienced more moderate symptoms (see Figure 17, page 34).

It is reasonable for children who are not highly symptomatic to be in counseling. Crisis counseling services were available to anyone who felt a need for them. On the other hand, the fact that symptomatic children were not in counseling is cause for concern. As seen in Figure 18 (page 34), only 27 percent of the children with severe or very severe post-traumatic stress reactions after the attacks received counseling services, and only 14 percent with behavior problems did. Further, fewer than one-quarter of the children living in proximity to the World Trade Center (below 110th Street) received counseling immediately after the attacks, and that proportion had not changed by the four-month mark.
FIGURE 17. COUNSELING SERVICES FOR CHILDREN AFTER SEPTEMBER 11

Source: World Trade Center Survey, conducted by the New York Academy of Medicine, January and February 2002.

Although children with severe or very severe post-traumatic stress reactions were more likely to receive mental health services than children with less severe reactions, these data strongly indicate there may be extensive unmet need among children most seriously affected by the September 11 attacks.45 These findings of disparity between the need for mental health services and
their delivery echo results from an assessment of New York City schoolchildren, which showed that only 34 percent of those with probable PTSD and impaired functioning in the months after September 11 attacks received counseling, either inside or outside the schools.46

WHY WAS SERVICE UTILIZATION LOW AMONG PEOPLE WHO PRESUMABLY NEEDED HELP?

The failure broadly even of those with elevated symptoms of stress to get help that was readily available is puzzling. To understand why, look first at the reasons given by the individuals themselves in response to survey questions. The overriding reason, as shown in Figure 19, relates to “altruistic concerns”—a belief that other people might need the services more. It is important to note that even individuals with PTSD and those who were directly affected by the terrorist assault expressed the view that others might need services more and indicated this as their reason for not seeking assistance. This result strongly suggests a need for an alternate route to services beyond self-referral.

FIGURE 19. REASONS FOR NOT SEEKING SERVICES

Other reasons cited for not seeking services were financial and time constraints, but these were not cited by as many people generally or as many showing symptoms. Since Project Liberty services were provided at no charge, those that cited cost as a barrier may not have been aware of their free nature. Although a smaller proportion of people cited lack of knowledge about where to go to get help, ignorance about features of the program might be a larger culprit than the figure indicates.

A final set of reasons for not seeking services is related to the stigma associated with receiving mental health services. It has been demonstrated that mental health pathology is stigmatized in many communities. It is possible that, in spite of the extensive Project Liberty outreach that aimed in part to allay such stigmatization, worry about others’ perceptions if one were to access these services continued to be a deterrent.

Professionals in the field offer other reasons why social services were underutilized in the aftermath of the September 11 attacks. First, people with PTSD or depression may not feel well enough to navigate the system on their own behalf. It is ironic that the disorder’s very symptoms make seeking care difficult. Second, individuals used informal networks—spouses, families, friends, religious groups—to help cope, and this may have been adequate for some.

**Is There a Role for Primary Care Physicians after a Disaster?**

The finding that most people who used services were already connected with mental health services, combined with indications of high unmet need, gives pause. These revelations are especially sobering given the extensive publicity surrounding Project Liberty. Good work was done in local areas, by groups like Safe Horizons, in training community responders to recognize people in distress and to direct them to the appropriate services. While those directly affected are fairly readily identified and approached, those indirectly affected are harder to identify when symptoms ripple throughout the population. Reaching large numbers of people, especially among those who were not directly affected but still needed services, proved to be a daunting task.
Taken together, these discoveries point strongly to the need to use other means to identify symptomatic individuals in the general population and to connect them with services. This may mean relying on other professionals with whom people regularly come in contact. Physicians are logical candidates. Most adults and children have at least one doctor visit during the course of a year. It is not known how many adults saw a doctor in the months after September 11, but the corresponding figure for children is a matter of public record.

In the six months after the attacks, a high proportion of children—80 percent or more—saw a doctor. Symptomatic children, too, overwhelmingly (approximately 90 percent) saw their primary physician, but far fewer of them saw a mental health professional. Specifically, a little more than half of the children with severe or very severe post-traumatic stress reactions saw a mental health specialist, and only about one-third of those with behavioral problems did (see Figure 20).

**Figure 20. Children’s Primary Care Visits Compared with Mental Health Visits**

![Bar chart showing the percentage of children with different PTSD levels who visited primary care providers and mental health providers.]

Source: Gerry Fairbrother, Jennifer Stuber, and Sandro Galea, “Do Primary Care Physicians Need to Screen for Mental Health Needs in This Age of Terrorism?” unpublished manuscript, New York Academy of Medicine, 2005.
It may be natural for parents to turn to their children’s customary physician in times of stress. It may also be the case that children with psychological distress develop physical symptoms as well. No matter what the reason, the large proportion of children seeing a primary care doctor suggests that such physicians can play a major role after a disaster, for adults and children alike.

It may be important, for example, for primary care physicians to screen patients routinely after a terrorist attack for mental health responses. Additional training for physicians would be necessary in order for this to happen. A survey of pediatricians in the New York City area asked about their skills in diagnosing PTSD and depression and in providing bereavement counseling. Most of these physicians thought they could diagnose depression: only about 12 percent felt lacking in the skills needed. Diagnosing PTSD constituted a more serious problem, with about half of the physicians saying that they lacked the skills to make this determination (see Figure 21).

**Figure 21. Pediatricians Report Needing Additional Mental Health Training to Help Their Patients**

![Bar chart showing the percent of pediatricians reporting needing additional mental health training for various tasks.](image)

More than three out of four said they would like additional training in screening for mental health problems, and many (44 percent) said they would like additional training in treating problems. This survey involved only pediatricians, but it is reasonable to assume that other physicians would respond similarly.

In addition to training, funding would need to be available. As currently constituted, FEMA assistance does not go to primary care physicians. But such physicians may need to screen routinely for mental health problems in all patients they see after a terrorist attack. It would be essential as well to create a model for interaction between primary care physicians and mental health professionals, whereby the primary care physician would check for symptoms of distress, treat the mild cases, and refer the severe cases to a specialist. A few such programs exist now.

**Conclusions and Lessons Learned**

The terrorist attacks on September 11, 2001, changed the landscape in ways that went well beyond the physical. One of the surprising lessons involved the breadth of the impact. While those closest to and most directly affected by the attacks were most likely to develop symptoms of psychological stress, mental health problems were by no means limited to that group. Indeed, a significant portion of the general population in New York City developed terrorism-related post-traumatic stress disorder, and distress reverberated throughout the nation as well, indicating the need for a nationwide public health response to a terrorist attack.

A second major finding was that the mental health services, despite being widely available and funded through FEMA, were not delivered to many who could have been helped by them. Combined with a new understanding of broad mental health needs, this demonstrates that a different approach to outreach and screening needs to be part of the process. Primary care doctors, who regularly see the vast majority of the population, can and
should be mobilized to identify those who are suffering after a terrorist incident. This proposed initiative would require funding and policy changes to facilitate testing and to help upgrade the skills of general practitioners concerning the field of mental health.

Notes

3. Ibid.
7. Galea et al., “Mental Health in New York City.”
10. Galea et al., “Mental Health in New York City.”
14. The assessment tool used to identify post-traumatic stress reactions is similar but not identical to the assessment procedure for PTSD, which has a precise clinical definition.


18. Ibid.


20. Silver et al., “Nationwide Longitudinal Study of Psychological Responses to September 11.”


22. Ibid.

23. Silver et al., “Nationwide Longitudinal Study of Psychological Responses to September 11.”


25. The Crisis Counseling Assistance and Training Program has two components: the Immediate Service Program, which covers the first ninety days following a disaster, and the Regular Services Program, which extends the same services for an additional nine months. The FEMA funding initially received included $22.7 million for the first ninety days and $132.5 million for the subsequent nine months.


27. Ibid.

31. Ibid.
32. Felton, “Project Liberty.”
33. Ibid.
34. Felton, “Lessons Learned since September 11th.”
35. Felton, “Project Liberty.”
38. Stuber et al., “Was There Unmet Need for Mental Health Services?”
39. Ibid.
41. Stuber et al., “Was There Unmet Need for Mental Health Services?”
42. Fairbrother et al., “Unmet Need for Counseling Services.”
44. Fairbrother et al., “Unmet Need for Counseling Services.”
45. Ibid.
46. Hoven et al., “Effects of the World Trade Center Attack on NYC Public School Students.”
Gerry Fairbrother is a professor of pediatrics at the University of Cincinnati/Cincinnati Children’s Hospital Medical Center, where she holds joint appointments in epidemiology and biostatistics as well as health policy and clinical effectiveness. Previously, she was senior scientist at the New York Academy of Medicine and research director of the Academy’s Child Health Forum. She received her Ph.D. from Johns Hopkins University. Dr. Fairbrother has examined the effects of September 11 on children in New York City as well as the adequacy of procedures to identify and serve the mental health needs of children after a terrorist attack. She also has written extensively about the impact of changes in the health care delivery system on children.

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