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**Aftermath of 9-11: Stress Levels during January 2002 from Manhattan
to California**

by
Terryl Chapman

A Thesis

Submitted in partial fulfillment of the requirements of the
Master of Arts Degree
Of
The Graduate School
At
Rowan University
April 17th, 2002

Approved by

Date Approved 5-8-02

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ABSTRACT

Terryl Chapman
Aftermath of 9-11: Stress Levels during January 2002 from Manhattan to California
2002

Dr. Roberta Dihoff
Dr. John Klanderma
School Psychology Program

In September of 2001, the world entered a period of recovery from the terrorist attacks on our nation which will engender decades of struggle to study, analyze and express the effects of that day by almost every conceivable field of human endeavor. The purpose of this study was to describe levels of stress throughout the nation during the first two weeks of January 2002. It was hypothesized that those people who were in closest geographic proximity to the disasters would have the highest levels of stress. The present study consisted of 96 respondents. 22 of those were within a 20-mile radius of the attack on 9-11. 36 respondents were from distances over 600 miles, primarily California. The remaining 37 were in areas approximately 150 to 500 miles from the attacks. The Impact of Event Scale-Revised was administered by e-mail and mail to a group of volunteers known to the examiner, who were asked to send it to friends and family. Respondents also answered a demographic information sheet which included questions regarding patriotism and self-report of behaviors such as fear of anthrax. Results indicated that levels of stress as measured by the IES-R were only slightly higher in the Manhattan-Washington group than in the California group. The greatest difference appeared in levels of "intrusion" stress, particularly sleep disturbance. When questioned informally, the New York group claimed lower levels of stress than the West Coast group did.

MINI-ABSTRACT

Terryl Chapman
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2002
Dr. Roberta Dihoff
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On September 11th 2002, the world entered a period of recovery from the terrorist attacks that will engender decades of study in many fields. The purpose of this study was to describe levels of stress throughout the nation during the first two weeks of January 2002. The results of this study indicate that levels of “intrusion” stress are highest where geographic proximity to the 9-11 disasters is greatest.

Acknowledgments

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CHAPTER I

INTRODUCTION

During September of 2001, the world entered a period of recovery from the terrorist attacks on our nation which will engender decades of struggle to study, analyze and express the effects of that day by almost every conceivable field of human endeavor.

The assassination of John F. Kennedy reverberates in our culture today, nearly 40 years after it happened. Although almost everyone alive then can remember where they were when they first heard that the President had been shot, most people cannot assess with certainty how much their lives were changed by that event. Cultural anthropologists still write books about conspiracy theories connected to the assassination, and parents tell their children and grandchildren about their lives in the sixties as if it were a special time of national change, a mutation in our culture which affects us still.

Need

Researchers have begun the monumental task of assessing the cultural and psychological effects of the recent acts of terrorism at the World Trade Center and the Pentagon and the war against terrorism that has ensued. We will be thorough and attentive to our collective psyche in the aftermath of this horrific day in history to ensure that the nation heals and moves forward in a positive way for the sake of the upcoming generations. According to daily news reports, psychologists, psychiatrists, educators, and social service personnel are experiencing stress in their efforts to accommodate the needs

of people in their care who have been affected. Nobody is truly unscathed. No matter where we live, we have been saturated with media images of disaster, horror, and unspeakable heartbreak in the wake of September 11th.

People are going about their daily lives with dignity, valor, humor, even apathy, very often oblivious to the terror immanent in every moment, and forgetful of the experiences we have shared. This may be due to positive leadership from our government, good mental health, or reliance upon positive and negative means of support. There are reports that stock prices have risen for companies selling antidepressants and anti-anxiety agents. People cry on TV talk shows. Even still, in Spring of 2002, bodies are being recovered from the wreckage of the World Trade Center in the continuing work to clear Ground Zero. Because the media is omnipresent, and connects the world into a global community, the repercussions of 9-11 reach far and wide. Does it matter whether you're in New York City or Timbuktu when you watch all the same TV news shows, and face the specter of terrorism and weapons of mass destruction? This study examined attitudes and levels of stress in the aftermath of 9-11 across a wide geographic area in an effort to learn more about stress in our global community, and to discover the implications of geographic proximity to the terrorist attacks.

Purpose

The purpose of the present study is to describe stress levels in three geographic regions, and to compare them. Because of mass media and communications, people from across the nation are bonded together more than ever before in our nation's history.

Although it may seem obvious that someone in New York will be more stressed than someone in California in response to the obliteration of the World Trade Center and its occupants, it will be interesting to investigate how great the difference is from coast to coast.

Hypotheses

The author has accumulated data in an effort to support the hypothesis that those people who live and work within the vicinity of the World Trade Center or the Pentagon will report the highest levels of stress when compared with two groups living farther away.

It is also hypothesized that respondents who live in California or other similarly distant locales will have the lowest levels of stress when compared to the other groups, and that respondents living midway between these two groups will have a “middle” level of stress. These stress levels are measured by the Impact of Event Scale-Revised (© Weiss & Marmar, 1997), and by an informal questionnaire.

In addition to the above research objectives, it is hypothesized that people who report that they have high levels of patriotism will have lower levels of stress, as measured on the Impact of Event Scale-Revised. If a respondent indicates on the informal questionnaire that he or she has displayed the United States flag in any way, or given renewed attention to the Pledge of Allegiance and patriotic songs since September 11th, they are designated “patriotic” for purposes of this study. Their scores on the stress measurement are then analyzed to determine if there is a correlation between patriotism and stress.

Theory/Background

Perhaps the greatest challenge facing educators, psychologists, parents, and society at large in months and years to come is the work required to help our citizens maintain mental health and stability and to function now or in the future as productive and healthy adults. The current stressors upon our entire society are not unique in the world to events which unfold after September 11, but they are unique to modern day America, because for the first time in the modern age we have been attacked on our own soil. This is not the first time innocent civilians have been murdered here by invading forces. The citizens of Boston were killed mercilessly by invading English soldiers during the American Revolution, Washington, D.C. was attacked and the Capitol and the White House and the Library of Congress were burned and nearly destroyed during that war. That also was an affront to the American psyche and a severe national and cultural trauma that would have had repercussions throughout the strata of society at the time, and implications for all mental health professionals and educators

Workplaces and schools will be facing challenges which can best be met when a person has strong family and community support and a sense of affiliation with the nation's endeavors. The nation has pulled together in the wake of 9-11, and there is a sense from shore to shore that we will stay together to fight terrorism and to heal our wounds.

Group testing emerged in World War I to assess the effects of battle on soldiers, and was instrumental in the development of theory about posttraumatic stress disorder. Beck's anxiety scale is a diagnostic tool that was developed out of these investigations. Beck believed that depression is caused by self-defeating, irrational cognitions. But in the

case of 9-11, stress levels, depression and anxiety could be caused by rational cognitions related to terrorism and development of weapons of mass destruction. There has already been much research done in previous wars about cultural anxiety similar to what we may experience emerging in the months to come. We may see a wide range of behaviors ranging from acting out to suicide. New assessment tools are being developed to accommodate our citizens who have become so highly sensitized in recent “me” decades to their psychological needs.

Definitions

9-11: This familiar phrase refers to the World Trade Center and Pentagon attacks as well as to the hijacked plane which crashed in Western Pennsylvania on September 11th.

IES-R: Refers to the assessment instrument used in the survey to measure stress, the Impact of Event Scale-Revised (© Weiss & Marmar, 1997).

Stress: This paper examines levels of stress as measured by the Impact of Event Scale-Revised. Stress is “a mentally or emotionally disruptive or upsetting condition occurring in response to adverse external influences and capable of affecting physical health, usually characterized by increased heart rate, a rise in blood pressure, muscular tension, irritability, and depression.” (The American Heritage® Dictionary of the English Language: Fourth Edition. 2000.)

PTSD: Post-traumatic Stress Disorder is a diagnosed mental disorder which can result from extreme psychological stress.

Assumptions

The assumption is made that the questionnaire was administered impartially and without bias of any kind. It is also assumed that the respondents answer truthfully and thoughtfully.

It is assumed that the respondents to the survey are not experiencing severe stress unrelated to 9-11, and that they followed directions to answer the questionnaire in regard to 9-11 and the previous seven days.

Limitations

The Impact of Events Scale-Revised is designed to assess symptoms of stress and post-traumatic stress by asking questions relating specifically to the past seven days. The questionnaire was administered to all people in the beginning of January, and they were asked to give their responses approximately January 10, 2002, to provide a continuity of time for all respondents. Because it was administered by e-mail, the responses came from a much wider area than expected, and were returned to the examiner throughout the month of January. It was not possible to assure that everyone was referring to the same 7 days previously when referring back, however there were no major news events during that time to skew the comparisons. The overwhelming majority of responses refer to the first two weeks of January, and no questionnaires were returned after January.

The respondents were instructed to answer the Impact of Events Scale in regard to 9-11. This research makes the assumption that no one in the study will report increased stress which is not relevant to the current study, and that the Impact of Events Scale remains a legitimate measure of stress relating to the aftermath of 9-11.

The author of The Impact of Event-R scale, Daniel Weiss MD, issues a caution with the scale, advising that it is not valid as a diagnostic tool for assessing post-traumatic stress disorders, rather it is valid when used to assess progress in the therapeutic setting. At the present time, no norms have been established for the scale. Nevertheless, the revised scale improves upon the original Impact of Event Scale by adapting to the DSM-IV diagnostic criteria for post traumatic stress disorder. The additions to the previous version are identifiers for symptoms of hyperarousal, in addition to the original symptomatology of intrusion and avoidance.

Because of the nature of the Internet, the document is not static in cyberspace, and changes did occur. The Impact of Event Scale was not altered in any response. However several people made “corrections” or erased and retyped a section of the demographic data regarding educational levels. Mutations of the document occur in cyberspace, and occasionally a response is invalid because it can’t be tabulated. For instance, people may respond with a “yes” or “no” to a question that needed a numerical response, but instruction had been inadvertently deleted.

One of the greatest limitations of the present study is that there is no baseline data to compare with current self-reported levels of stress. The present research is not intended to be used to determine who needs services to address increased stress. There is no attempt to produce a diagnostic result, and therefore the research is an indicator of stress at the broadest level. Participants were advised that the purpose of the questionnaire was not diagnostic. Comparisons are primarily of demographics, in particular of differences in three geographic zones.

Overview

In Chapter 2, literature relating to the aftermath of disaster and the issues relating to stress in affected populations is reviewed. Past experience has yielded a large field of study of disaster victims, longitudinal studies allow time for repeated measures, and development of recommendations for appropriate preparation and response. There is already research appearing about 9-11 that will be reviewed. In Chapter 3, the design of the study is discussed, as well as the sample, the operational measures, testable hypotheses, followed by a general analysis of the design. In Chapter 4, results of the survey are presented, with an analysis of the data. A summary and conclusions will appear in Chapter 5. We have the experiences of the past to guide us in our understanding of the aftermath of 9-11, and we continue with Chapter 2, in which some of the lessons from our past, as they have been revealed through research, will be reviewed.

CHAPTER II

REVIEW OF THE LITERATURE

To evaluate and analyze the responses to the Impact of Events Scale, and the accompanying informal questionnaire, and to compare the results meaningfully, it is necessary to be aware of research and literature which pertains to the general areas under discussion. We begin with a brief discussion of media reports. This chapter contains a review of research literature on large-scale trauma by terrorism, war, plane crash, and the concomitant post-traumatic stress disorders, and natural disasters such as hurricane, volcano, and earthquake. The selected studies contain results which have bearing on proximity to a traumatic event, and to stress reactions in response to such events, and the hope for recovery. A review of a study of the adult offspring of Holocaust survivors will show how proximity in time is also an issue, and suggests that repercussions endure long after the fact. There are studies of illiteracy and alcoholism as preexisting predictors of stress and post-traumatic stress disorder following disasters. Studies were reviewed of survivors of Hurricanes Mitch and Andrew, Chernobyl, of Kuwaiti firefighters after the liberation of Kuwait, earthquakes in Italy, and the 1993 World Trade Center bombing, as well as studies which also use the IES-R. Finally, new research investigating stress following 9-11 will be reviewed, including a study by the National Sleep Institute published in March 2002.

Media Coverage

For the purpose of this study, which is to compare stress levels and attitudes and behaviors following 9-11, current media reporting plays a large part both in describing stress reactions and in producing them. Media will help to provide a context for the present review that concerns recent events out of which a body of research is just emerging.

The media plays the largest role in the nation's collective perceptions of the disaster, and future research will help to define the media role and responsibility in the development of cultural stress and anxiety. The most casual review of Time, Newsweek, and US News magazines gives some startling clues to the havoc wreaked on the collective psyche of our nation. In the weeks preceding 9-11, these magazines had cover stories that were not alarming. Pastel greens and blues predominated on the covers in the weeks leading up to the disaster. Time Magazine rushed to deliver a slim special issue within days of the disaster. It featured photographs and minimal copy, and included a stark photo of the second plane approaching the World Trade Center, with the first building on fire. A photograph showed us people jumping to their deaths like confetti. An editorial seemed smug with Pulitzer anticipation.

In the months following, these magazines' covers were emotionally-charged in shades of red and black, with the following glaring headlines: "Under Siege" (US News, September 24), "Trial of Terror" featuring Osama Bin Laden's face up close and personal (October 1), "Biological & Chemical Terror: How Scared Should You Be?" (Newsweek, October 8), "Facing The Fury" featuring the raging face of an anti-American protester (Time, October 15), "Why They Hate Us" featuring the face of a young child holding a

machine gun at an anti-US rally in Islamabad (Newsweek, October 15), “The Fear Factor” (Time, October 22), “Anthrax: A Spreading Scare” (Newsweek, October 22), “Death By Mail: : The Terrifying Anthrax Maelstrom” (US News, November 5), “Are You Too Scared to Spend?” (US News, November 19).

On November 19th, Time and Newsweek allowed us some relief for the approaching holiday season. Time featured a piece of pumpkin pie adorned with an American flag, and Newsweek featured a photo of the incoming and outgoing mayors of New York smiling largely over the words “The New New York.” The cover of the New York Times magazine on September 30th consisted of the spiraling words “The Fear Economy.” Fear, terror, and horror were the top sellers for many weeks, and the public was inundated with these frightening words and images whenever they passed a magazine rack. It took a long time for the TV news to get back to a semblance of normality. One evening after NBC studios received anthrax-tainted mail, the normally unflappable Tom Brokaw closed his evening news broadcast by brandishing a bottle of pills and saying poignantly “In Cipro we trust.”

Community Responses to Disaster: Far Reaching effects

In the book *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos* (Ursano, McCaughey and Fullerton, 1994), the authors have gathered research which is salient at this time. Three research studies contained in this book will be reviewed: “Children of war and children at war: child victims of terrorism in Mozambique” (Shaw and Harris, 1994), “Group Reactions to trauma: an avalanche accident” (Herlofsen, 1994) , and “Community Responses to Disaster” (Wright and

Bartone, 1994)

In “Group Reactions to Trauma: an Avalanche Accident,” Herlofsen (1994) studied soldiers’ responses to an avalanche in which many of them died. He also analyzed the impact of natural disaster on the surrounding groups and communities. After the avalanche, the survivors in the affected platoon were brought back to a group of soldiers who had not been exposed to the near-death experience, and had not shared in the immediacy of the devastation in which others perished. They “struggled long and hard to find common ground on which to function rationally“. Herlofsen reports that at first relationships were strained between the two groups, but that gradually as they made plans about which funerals to attend, “a new sense of purpose was gradually established, very much under the influence of memories of their dead comrades.”

In the immediate aftermath, both groups of soldiers, those near the accident and those unexposed, scored similarly on The Impact of Events Scale, revealing signs of stress both on avoidance and intrusion scales. Interestingly, the non-exposed group scored higher at first, having exaggerated severe reactions to the avalanche stories. However, those who were actually in the avalanche and survived had more intense symptoms as the months went by. This could be compared to the 9-11 firefighters being so engrossed in the task at hand that they exhibited signs of camaraderie and bravery for many weeks, but may experience intensifying signs of stress as months go by. An act of terrorism is not natural, but it is an unexpected shock, with many of the same dynamics as a natural disaster, therefore Herlofsen’s observations are useful to the present study. There is plentiful research on human reactions to disasters. Herlofsen states that “group cohesion before a dramatic life threatening event will. provide better protection against

stress, thus enabling individuals within the group to cope better”. Recent events in New York have illustrated that the trauma endured by firefighters was shared and processed through the pre-existing well-established bonds the firefighters had with one another.

In “Community Responses to Disaster” Wright and Bartone (1994) developed a disaster community model, based on a military plane disaster at Gander, Newfoundland. The authors report that the repercussions in the community reverberated all around the world. They follow the psychological repercussion of the accident from the immediate Gander area as it develops into a broader and broader community, and quickly to military communities around the world. The discussion calls the attention of health care providers and helpers to “the ever-widening circle of the affected bereaved, including the often overlooked mortuary workers, chaplains, security police, and many others on out into a broad social system.” The authors document the importance of a strong leader to create a sense of “shared sorrow.” during the recovery period after disaster.

The Gander model serves as a warning to those who help with disaster relief efforts that the psychological effects of a disaster extend far beyond the immediate community. The classification of victims and the objectives of disaster relief must extend to include a continuum of stress reactions and a recognition that recovery occurs in stages which are different for different categories of participants. The Gander research is a military study of a military incident: data is thorough and accurate, and its recommendations have important implications in the aftermath of 9-11.

Geographic proximity to disaster was found to affect stress levels after a volcanic eruption in New Zealand in 1995. Becker et al (2001) used the Impact of Event Scale-Revised and a questionnaire to obtain data about perceptions of volcanic hazards and

found a positive correlation between proximity to disaster, and stress regarding the possibility of future eruptions. However since this study regards proximity to a volcano, which is not going to go anywhere, and which certainly could erupt again, the data does not support the current study which evaluates stress levels after an unpredictable terrorist attack.

Strategies for Psychological Recovery and Alleviation of Stress after a Disaster

It's helpful to know that there is research to prove that even the worst trauma can be overcome by the use of proven strategies for psychological health and the resolution of stress issues. Our children may be stronger than we are in this regard. Shaw and Harris "Children of war and children at war: child victims of terrorism in Mozambique" (1994), study child victims of terrorism in Mozambique who were forced to participate in atrocities and who experienced shellings and multiple adversities. Their research is designed to develop strategies for preventing psychiatric morbidity, and to nurture and protect children who have been traumatized by terrorism. Children exposed to war and conflict situations often have increased aggression. Shaw and Harris developed a model for helping children adapt and reintegrate into family and community. They find that a child who has been traumatized or upset by terrorism and war can be damaged by "exaggerated parental emotional response, reversal of the dependency role, and excessive intolerance of the child's proclivity to regressive behavior." The study refers to the child's resilience: "The cognitive immaturity, plasticity, and adaptive capacities of a child have often veiled the effects of war in a certain obscurity." Their study centered on a small group of 11 children who were evaluated for post traumatic stress and other

psychological problems after having been forced to abandon their fragile developing morality to kill other people. The research talks about processing guilt primarily, but also offers some hope that emotional support and the sharing of traumatic experiences, no matter how severe, can help even the most cruelly traumatized children to reintegrate socially.

Further research on the importance of sharing traumatic experience is done by O'Neill and Smyth, "Effects of Written Disclosure" (2001). They studied the efficacy of a written expression task in which people express their feelings about a traumatic event, in alleviating or minimizing stress after a disaster. It is an easily implemented intervention, and has proven effective. Following the 1993 study by Pennebaker, they selected a group. They used established tools measuring symptoms of physical and psychological stress, the Negative Affect Scale, the Physical Symptoms Index and the Impact of Event Scale, to determine which students had been most affected by a hurricane. The group consisted of 109 students who had either been evacuated from their homes or whose homes had been structurally damaged. One half of the group was told to write about their feelings regarding the hurricane, the other was given a time management task. After several months, the subjects were contacted again and given the assessment for stress. The group which had been given the opportunity to express their feelings in the writing task were less likely to be experiencing stress after the elapsed time.

Other Factors Contributing to Stress after Disaster

Orlee Udwin et al (2000) studied long-term psychological effects of disaster in adolescence. Their subjects, 217 young adults who survived a shipping disaster, were

evaluated for symptoms of PTSD 5 to 8 years after the disaster. It was found that PTSD was present more often in women, particularly in those with vulnerability factors of social, physical and psychological difficulties in childhood, and a rating of depression 5 months after the disaster. The baseline data acquired within the first year served well for the longitudinal study. The results are complicated by the abundance of documentation of pre-disaster factors of learning difficulties, violence in the home, and social supports later. Measures of degree of exposure to the disaster provided the best prediction of vulnerability to PTSD.

Socioeconomic factors prior to disaster have been shown to be significant predictors of PTSD. Cladera et al (2001) studied 496 adults in Nicaragua in the aftermath of Hurricane Mitch and found that the illiterate, females, and those with previous mental health problems should be targets for early post-disaster interventions, based on PTSD symptoms which they identified using the Harvard Trauma Questionnaire 6 months after the disaster.

Betty Pfefferbaum et al (2001) surveyed students after the Oklahoma bombing, and established a connection between television exposure and PTSD at 6 weeks. A higher level of TV exposure correlated with a higher level of PTSD symptomatology, although it was not clear whether one preceded the other.

Proximity in time to trauma is also an apparent factor in stress reactions, although even one entire generation is not always enough to heal the wounds. Researchers found that offspring of Holocaust survivors have an increased risk of developing post-traumatic stress disorder (Yehuda et al, 1998). They found that 100 adult offspring of Holocaust survivors had greater prevalence of PTSD and other psychiatric disorders than a control

group of 44 subjects when evaluated with the Antonovsky Life Crises Scale (Antonovsky, 1979) and an unpublished Trauma History Questionnaire.

Long-term studies after disaster contribute to our knowledge in many areas, and early documentation can insure valuable research in the future. Much research has been done trying to make connections between drug and alcohol use among survivors of disaster. Pfefferbaum and Doughty (2001) studied alcohol users who were receiving support services after the Oklahoma City bombings, adding to the evidence that it is important to monitor alcohol and drug use by disaster survivors and support personnel, even many years after the trauma. This particular study describes the problem, and, despite continuing research, there is not much of a solid solution to the problem.

Pfefferbaum et al (2002) also found associations between grief and post-traumatic stress while evaluating survivors of the 1995 Murrah Federal Building in Oklahoma City.

Some people embrace the idea of moving away and starting a new stress-free life far removed from the memories of a disaster. L.I. Remennick (2002) of Bar-Ilan University in Israel studied Russian immigrants to Israel who had survived the Chernobyl disaster. He compared a group of nearly 400 Russian immigrants, half of whom were from nearby Chernobyl, and half from other parts of the USSR. He evaluated self-reports of health and social adjustment, and found that the Chernobyl group was significantly worse, with high rates of depression and anxiety about cancer.

Emerging Research on Psychological Effects of 9-11

George Everly and Jeffrey Mitchell published “America under Attack: The Ten Commandments of Responding to Mass Terrorist Attacks” (2001), in which they made

recommendations to ensure the preservation of mental health among survivors. They state that terrorism is psychological warfare and that our psychological support services may be our best defense against terrorism. Their recommendations are good, but already implemented through the intuitive powers of a resilient people and good leadership. They make recommendations to assure people that they must not give in to psychological warfare, to establish crisis intervention hotlines, to cooperate with mass media to provide information to the masses, to reassure people of their safety, and to reestablish work, school, and transportation normalcy as soon as possible, using rituals and symbols (such as the American flag) to help people grieve. These things came naturally to the resilient people of New York and America after the events of 9-11.

Research published in April 2002 in the New England Journal of Medicine studied New Yorkers in the aftermath of 9-11 and found that more than 150,000 residents suffered post-traumatic stress disorder or depression following the World Trade Center attack. 7.5 percent of those living in southern Manhattan had PTSD and 9.7 percent reported signs of depression. In the immediate area of the World Trade Center, 20 % of respondents reported PTSD. This study was conducted by phone interviews of 988 random volunteers from October 16th to November 15th.

In March of 2002, the National Sleep Foundation published results of a random national phone survey of 1010 people between October 1 and December 10th, 2001. 7 out of 10 people reported sleep disturbances, with 78% of women and 59% of men reporting insomnia, a significant increase since a similar survey the previous year. Data also reveals increased sales of sleeping aids and antidepressants following 9-11.

Summary

There is a richness of research on the survivors of disasters, and that research includes much data in the domains of stress assessment. Military studies of a military disaster in Gander, Newfoundland and the reactions of soldiers to a disastrous avalanche have shown that stress reactions to disaster are complex and occur in stratifiable levels and times. These studies document the growth of the global community, and compare the repercussions of disaster in a military community to the rings emanating in water after a stone is tossed into a pond.

Repercussions of disaster extend into the generations. Adult children of Holocaust survivors exhibit symptoms of psychological problems and PTSD. Alcohol and drugs are a comfort for many, and even Russian immigrants to Israel could run, but not hide from their fears and anxieties, as studies show they suffer many psychosomatic symptoms of illness and stress. Researchers and health care professionals run in to fill the gap but are often victims of the trauma and stress themselves in months and years following. However, there is ample evidence to prove that even the most brutally traumatized children, kids who have been made to commit murder in Mozambique, can be integrated back into society by strong support systems and the opportunity to express their feelings. One study found that providing survivors with a pencil and paper to draw or write about their experiences may be one of the best tools we have to prevent mental and societal illness.

Research published in the Spring of 2002 documents that within Manhattan alone PTSD among survivors is significantly higher in the immediate vicinity of the World Trade Centers than further uptown in Manhattan. A nationwide study by the National

Sleep Foundation shows increases in insomnia and sleep disorders, as well as an increase in the use of sleeping pills and antidepressants following 9-11.

CHAPTER III

DESIGN OF THE STUDY

Sample

The sample for was collected by establishing three target areas: Manhattan and Washington (Zone A), Southern New Jersey and Pennsylvania (Zone B), and California and similarly distant locales (Zone C). The examiner targeted her acquaintances and relatives in each of these areas for the initial distribution. Approximately 5 volunteers from each zone were asked to participate by mail or e-mail to a questionnaire regarding stress in regard to 9-11. The initial respondents were asked to continue to distribute the questionnaire packets or e-mails to friends and relatives, and to respond on or around January 10th 2002.

Measures

Information Questionnaire

The information sheet was devised by the examiner to gather demographic data and information regarding age, gender, occupation, and educational background, as well as questions about attitudes and reactions following 9-11. Respondents were asked to gauge their own stress levels, and to respond to questions about patriotic feelings since 9-11, as well as feelings regarding fears of flying, anthrax, and attitudes towards people of Middle Eastern descent. They were also asked to report how much exposure they had to the news.

The second part of the packet was The Impact of Event Scale – Revised (Weiss & Marmar, 1997) which measures levels of stress for a period of seven days prior to the time of responding to the survey. The IES-R yields a total score, and subscores in three domains of stress: symptoms of intrusion, symptoms of avoidance, and symptoms of hyperarousal. These scores are generally used to identify symptoms of stress in a comparative fashion from one period of time to another, and are useful in the therapeutic setting for assessing progress. The Impact of Events Scale-Revised (Weiss & Marmar, 1995) was administered to all participants. It is a 22-item self report measure of the three broad domains of response to traumatic stress: intrusive phenomena, avoidant and numbing phenomena, and hyperarousal phenomena. Respondents are asked to use a scale of 0 to 4 to indicate how distressed they have been in the previous seven days with respect to the events of 9-11. 0 =Not at all, 1=A little bit, 2=Moderately, 3=Quite a bit 4=Extremely. The scoring is done as follows:

Avoidance Subscale:	Mean of items 5,7,8 11, 12, 13,17,22
Intrusions Subscale:	Mean of items 1,2,3,6,9,16,20
Hyperarousal Subscale:	Mean of items 4,10,14,15,18,19,21
IES-R score:	Sum of the above 3 clinical scales.

The IES-R, as described above, yields a total score that can be used in a comparative fashion with data from other sources, such as demographic information. Scores are not used in a diagnostic manner to determine the existence of PTSD. The sample was consistent demographically across three geographic zones and across age, gender, and educational status.

Method

A demographic questionnaire was distributed by e-mail to about thirty people known to the examiner. Packets containing 20 hard copies were mailed to several people in each zone and each included about ten small stamped return envelopes and one large stamped return envelope for quantity mailings. Respondents were told that if they did not reply by e-mail, and preferred anonymity, they could use the hard copies.

The questionnaire was distributed around New Year's Day. Packages of about 40 questionnaires were sent to people known by the examiner in California, Florida and New York City. Respondents were asked to distribute to friends and relatives. The questionnaire was also sent out by e-mail with similar instructions. Anonymity was guaranteed to all respondents who wished to copy and mail to the examiner. Stamped return-address envelopes were provided. All responses were received by the last week in January. Questionnaires were then numerically coded and data entered into spreadsheets. Demographic information was entered. The second part of the questionnaire is The Impact of Event Scale-Revised which is a valid and reliable tool in the therapeutic setting to assess levels of progress for people who have experienced stressful situations. The researcher followed scoring procedures outlined by the respective authors of the scale. The scale allowed for measurement of avoidance, intrusion, and hyperarousal symptoms. There is also a global score, which is the sum of the scores on the subscales. The mean of the global scores for each region was quantified for purposes of comparison. The questionnaires were discarded after the numerical code was established and the data entered into Excel.

The above demographic classifications are then compared to the results of the

Impact of Events Scale to determine if fearfulness or patriotism can be correlated with the stress levels in a meaningful fashion

Design

All responses were organized by zones, and the data from both parts of the questionnaire was entered into an Excel spreadsheet. The respondents were numbered and grouped by zone. The score and subscores for each respondent were made by hand using a calculator and entered into the spreadsheet. A mean was calculated for each individual's total score and for each of the subdomains of avoidance, intrusion, and hyperarousal. The total scores for each of three geographic zones were calculated, as well as the mean score for each zone. The results were compared by statistical test (one way analyses of variance) to describe differences in levels of stress between the three geographic zones. Comparisons were also made between total stress levels and other information from the demographic information, including gender and a non-formal self report of stress and patriotism.

Demographic data was presented to describe the age, gender, educational level and geographic proximity to New York or Washington DC on September 11th. Four questions regarding patriotic behaviors are asked. If the respondent replies "yes" to three out of four of these questions, he or she is regarded to be feeling patriotic. If he answered that he handled his mail with extra care after the anthrax attacks, and either that he would not attend a stadium event if there was a "highly credible" terrorist threat against it or that he is apprehensive about patronizing a store owned by unfriendly people of middle-Eastern descent, he is classified as feeling "fearful."

Stress level is the criterion variable in the study, measured by the Impact of Event Scale-Revised version (Weiss, 1995). The predictor variables are geographic proximity to the events, age, self-reported levels of apprehension regarding flying, anthrax and ethnicity, and a self-report of patriotic feelings since 9-11.

The instrument chosen for this study, the Impact of Event Scale-Revised, was appropriate for providing an operational measure of the study's construct: stress level following a cataclysmic event.

Null Hypotheses

1. Out of three geographic groupings, People who live within a 20 mile radius of the World Trade Center or the Pentagon will not have experienced the highest levels of stress following 9-11 based on scores from the Impact of Event Scale-Revised.
2. Out of three geographic groupings, people who live in California and other similarly or more distant locales will not have experienced less stress following 9-11 based on scores from the Impact of Event Scale-Revised.

Summary

A questionnaire was distributed by e-mail and mail to respondents known to the examiner in New York, Washington, Pittsburgh area, and California. All respondents were volunteers who were encouraged to pass the questionnaire along to friends and family. Subjects were asked to complete the Impact of Event Scale-Revised, which provides subscales of symptoms of intrusion, avoidance, and hyperarousal and a total

score, which indicates levels of stress. The IES-R is not normed, and does not have cut-off points, but it can be used comparatively after a disaster to assess progress in a therapeutic setting. It does indicate a range of stress levels, but is not a diagnostic tool for PTSD. Respondents were given no further instructions or indications of the purpose of the survey.

A demographic questionnaire was also included in the mailings, and questions were asked to establish geographic location on 9-11, and a classification for each person as patriotic, news aware, and /or fearful of anthrax, flying, and of becoming a target of terrorism. Information was also gathered regarding age, educational levels, occupation, gender, and sleep, diet and exercise. This information was compared to the score on the IES-R indicator of stress levels, to investigate relationships between variables.

CHAPTER IV

RESULTS

Subjects of this study were 95 people who volunteered to respond to a questionnaire that was distributed by e-mail and mail. The initial distribution was to acquaintances of the researcher who lived in regions of the nation targeted for their geographic relationship to the disasters of 9-11. Nineteen respondents were from the Manhattan area, and were within several miles of the World Trade Center on 9-11. Two respondents were in the Pentagon when the plane crashed there. This group is referred to as Zone A. Zone B includes 15 people from the Pittsburgh area and 22 more from areas 100 to 300 miles from impacts. 36 respondents were from distances over 300 miles, 22 of those from California, See Table 4.1 for geographic distributions.

Table 4.1 – Sample by Geographic Region

Manhattan area (20 mile radius maximum)	19
District of Columbia	4
Pittsburgh	15
California	22
Florida	4
South Jersey and Philadelphia area	22
Massachusetts	2
Maine, Ohio, South Carolina, Texas,	
Hawaii, N. British Columbia, Saipan (1 each)	7
Total	95

One group of thirty-six respondents is primarily from California, but includes subjects living in Florida, Maine, British Columbia, Oregon, Hawaii, and one from Saipan. The second group of thirty-seven is from a 150-400 mile range from either Washington DC or New York City. The third group of twenty-two is from within a 20

mile radius of Manhattan or the Pentagon. The age distribution is shown in Table 4.2:

Table 4.2 – Sample by Age

Under 18*	2
18-21	9
22-30	20
31-40	13
41-50	12
51-60	29
61-70	4
71+	4

*with parental approval

Level of Education

One set of questionnaires was distributed without a space for “4 year college degree”. Therefore most respondents with four-year degrees chose to check “Professional degree” or “Master’s degree. To accommodate this error, the categories for 4-year degree, Masters and Professional degrees have been combined. Of those who responded to this question:

Table 4.3 – Sample by Education

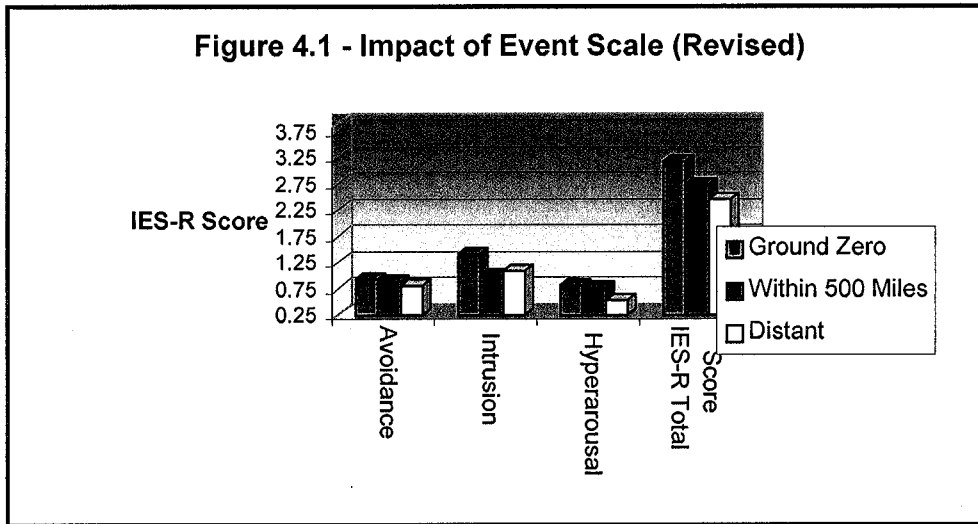
4 Year College Degree or beyond	47
Associate's Degree	5
Some College	29
Completed High School	4
Still in High School	2

Restatement of Hypotheses

Null Hypothesis #1: Out of three geographic groupings, People who live within a 20 mile radius of the World Trade Center or the Pentagon will not have experienced the highest levels of stress following 9-11 based on scores from the Impact of Event Scale-Revised.

Of the three geographic groupings, Zone A, which is the group closest to impacts on 9-11 had a mean total score on the IES of 3.16. The scores on the subscales were as follows: Avoidance .92, Intrusion: 1.43 and Hyperarousal, .81. Zone B had a total mean score of 2.72, Avoidance .90, Intrusion 1.04, and Hyperarousal .78. Zone C, which is the California group, had a total score on the IES-R of 2.45, Avoidance .81, Intrusion 1.10, and Hyperarousal .54 (See Figure 4.1). The mean total stress score for Zone A is the highest of the three zones, and stress levels in each of the subdomains is highest for Zone A. A one way analysis of variance was done to determine significance of the scores. The data supported the null hypothesis. The apparent differences in the mean scores were not statistically significant.

Null Hypothesis #2: Out of three geographic groupings, people who live in California and other similarly or more distant locales will not have experienced less stress following 9-11 based on scores from the Impact of Event Scale-Revised. The mean of the total scores on the Impact of Event Scale-Revised is lowest in Zone C, which is the group farthest away from the impact of 9-11. A one way analysis of variance was done to determine significance. The data supported the null hypothesis. The difference in the mean scores was not statistically significant.



Analyses of variance of data showing symptoms of total stress and also symptoms of hyperarousal and avoidance for all groups show no statistically significant difference based on geographic proximity to the events of 9-11. However, an analysis of variance for data on symptoms of intrusion stress across three geographic zones rejects the null hypothesis that New Yorkers would not report higher levels of stress: $F(1,91)=3.76$ ($p<.05$). There is statistical significance indicating that respondents who live within a 20 mile radius of the events of 9-11 had higher levels of intrusion stress during January 2002.

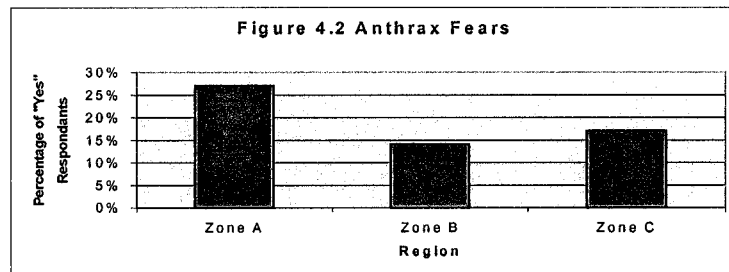
Detailed findings based on the demographic questionnaire

The demographic questionnaire contained questions regarding attitudes following

9-11, and yielded the following results:

Did you handle your mail with extra care following the anthrax attacks?

- Zone A (New York group): 6 people answered “yes”. (27%)
- Zone B (Middle group): 5 people answered “yes”. (14%)
- Zone C (California group): 6 people answered “yes”. (17%)

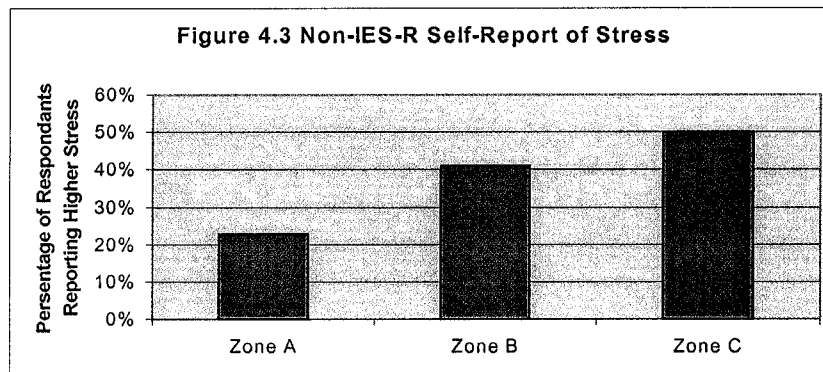


How comfortable are you on a plane, on a scale of 1 to 10, following 9-11?

- The majority of people (50) answered with a 7 or above. (53%)
- 21 people answered with a 5 or below. (47%)

Would you attend a stadium event if it was announced that there was a highly credible terrorist threat against that venue but that security was on high alert?

- The majority, 71, said they would not attend. (84%)
- 24 people said they would attend. (16%)



In light of 9-11, would you continue to patronize a store owned by Middle Easterners

who had never been particularly friendly?

The majority, 73, said they would continue to patronize the store. (77%)

22 respondents said they would not. (23%)

If subjects responded that they had handled their mail with extra care, and also either that they would not attend the stadium event or that they would not patronize the store, they were designated “fearful.” Of those subjects who indicated fearfulness, all scored higher on the total stress score, with an average score of 4.5.

Would you take a job in the civil service following 9-11?

48 respondents said they would. (51%)

47 responded they would not (49%)

Do you think your stress levels have increased since 9-11?

5 people in Zone A said yes. (23%)

15 people in Zone B said yes. (41%)

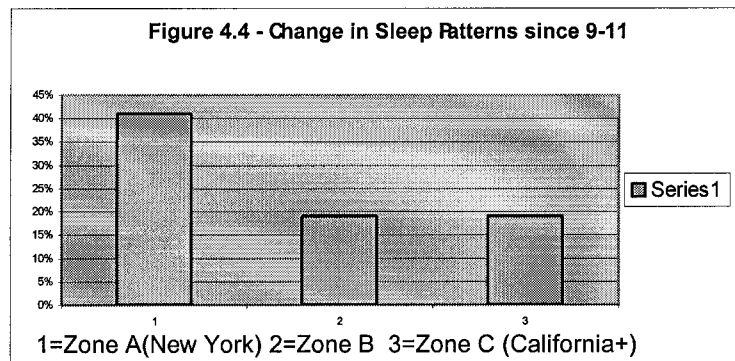
18 people in Zone C said yes. (50%)

Twenty-four percent of the people in the total sample report changed sleep patterns following 9-11. Of that 24%;

9 people in Zone A reported changed sleep patterns (41%)

7 people in Zone B reported changed sleep patterns (19%)

7 people in Zone C reported changed sleep patterns (19%)



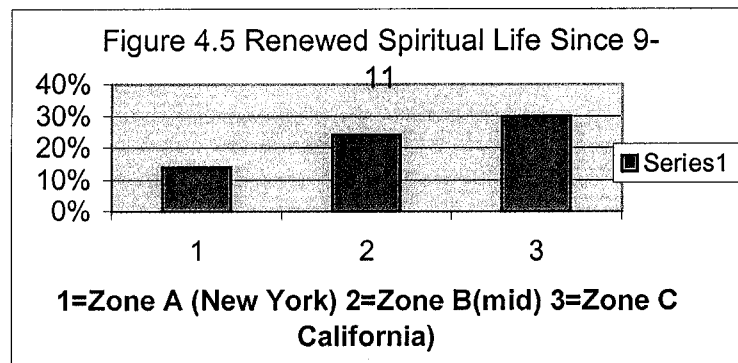
Four people in the total sample report consulting a doctor for problems relating to 9-11. Four people also report taking medication for stress related symptoms since 9-11. Four people in the total sample report seeking counseling after 9-11.

Five people in Zone A report that they have become more vigilant about diet and exercise, following 9-11, which is 5/22 (23%). Three people in Zone B answered yes to the question, which is 3/36 (8%). Five people in Zone C answered yes, which is 5/37. (14%) The New York group has the highest percentage of respondents who have increased attention to diet and exercise.

Four people in the total sample have become less vigilant about diet and exercise, and four also report that they have increased risk-taking behavior since 9-11.

Twenty-three people in the total sample report that they have renewed their spiritual life, which is 23/95. (24%) Most respondents who have renewed their spiritual life are from the California group.

- 3 are from New York, which is 3/22 (14%)
- 9 are from Zone B, which is 9/37 (24%)
- 11 are from the California group, which is 11/36 (30%)

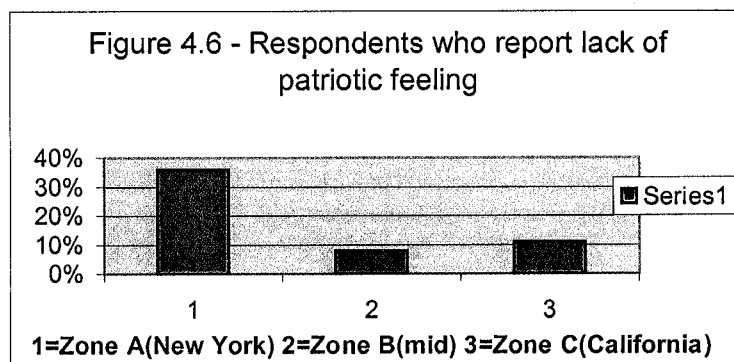


Thirteen people report that they have become more cynical, 2 from Zone A, 9 from Zone B, and 2 from Zone C.

Fifteen people indicate that they are not patriotic.

8 of these are from Zone A (New York), which is 8/22	(36%)
3 are from Zone B	(8%)
4 are from Zone C (the California group)	(11%)

Over 50% of respondents who indicated that they are not patriotic are from Zone A. Responses indicate that New Yorkers are less patriotic, and less likely to have renewed their spiritual lives than the other two groups, although the majority of respondents in the total sample are patriotic and have renewed their spiritual lives.



CHAPTER V

SUMMARY

Summary

There is a richness of research on the survivors of disasters, and that research includes much data in the domains of stress assessment. Military studies of a military disaster in Gander, Newfoundland and the reactions of soldiers to a disastrous avalanche have shown that stress reactions to disaster are complex and occur in stratifiable levels and times. These studies document the growth of the global community, and compare the repercussions of disaster in a military community to the rings emanating in water after a stone is tossed into a pond.

Repercussions of disaster extend into the generations. Adult children of Holocaust survivors exhibit symptoms of psychological problems and PTSD. Alcohol and drugs are a comfort for many, and even Russian immigrants to Israel could run, but not hide from their fears and anxieties, as studies show they suffer many psychosomatic symptoms of illness and stress. Researchers and health care professionals run in to fill the gap but are often victims of the trauma and stress themselves in months and years following. However, there is ample evidence to prove that even the most brutally traumatized children, kids who have been made to commit murder in Mozambique, can be integrated back into society by strong support systems and the opportunity to express their feelings. One study found that providing survivors with a pencil and paper to draw or write about their experiences may be one of the best tools we have to prevent mental and societal illness.

Research published in the Spring of 2002 documents that within Manhattan alone PTSD among survivors is significantly higher in the immediate vicinity of the World Trade Centers than further uptown in Manhattan. A nationwide study by the National Sleep Foundation shows increases in insomnia and sleep disorders, as well as an increase in the use of sleeping pills and antidepressants following 9-11.

The Present Study

A questionnaire was distributed by e-mail and mail to respondents known to the examiner in New York, Washington, Pittsburgh area, and California. All respondents were volunteers who were encouraged to pass the questionnaire along to friends and family. Subjects were asked to complete the Impact of Event Scale-Revised, which provides subscales of symptoms of intrusion, avoidance, and hyperarousal and a total score, which indicates levels of stress. The IES-R is not normed, and does not have cut-off points, but it can be used comparatively after a disaster to assess progress in a therapeutic setting. It does indicate a range of stress levels, but is not a diagnostic tool for PTSD. Respondents were given no further instructions or indications of the purpose of the survey.

A demographic questionnaire was also included in the mailings, and questions were asked to establish geographic location on 9-11, and a classification for each person as patriotic, news aware, and /or fearful of anthrax, flying, and of becoming a target of terrorism. Information was also gathered regarding age, educational levels, occupation, gender, and sleep diet and exercise. This information was compared to the score on the IES-R indicator of stress levels, to investigate relationships between variables.

Conclusion

Responses show that levels of stress as measured by the IES-R are somewhat higher in Zone A, which includes people from within a 20 mile radius of the attacks on 9-11. An analysis of variance failed to show statistically significant differences across the zones, with the exception of intrusion stress, which is highest in Zone A. Intrusion stress refers to such symptoms as having waves of feelings about the event, or disturbed sleep. Zone A has the lowest self-report of stress as reported on the informal demographic questionnaire, the lowest level of self-report of patriotic feelings, and the highest level of self-reported changes in sleep patterns. Zone A respondents were least likely to report that they had renewed their spiritual lives, and Californians (Zone C) are the most likely to report increased levels of spiritual life. New Yorkers are the most likely of the three groups to say they have become increasingly vigilant about diet and exercise.

The stereotype of the tough New Yorker is reflected in the responses to the self-reports of patriotism and spiritual life. New Yorkers deny these impulses in the wake of 9-11, and they also deny that they have more stress in general. However, when measured on The Impact of Event Scale-Revised, there is a different result for the New Yorkers. The formal scale contains measurement for three subdomains of stress, which are hyperarousal symptoms as well as intrusive and avoidant symptomatology. This “disguises” questions somewhat, so that respondents may deny hyperarousal like jumpiness and nervousness, but if they report sleep disturbances or other subtle symptoms, the overall stress score may be higher than the respondent could predict. In the case of the present study, it seems New Yorkers (this group does include several from Washington, DC) denied that they feel stress, but were experiencing intrusive symptoms

of stress, particularly disturbed sleep. In light of stereotypes which portray Californians as ultra relaxed, spiritual and health conscious, and New Yorkers as toughened, it might seem unsurprising that the California group had experienced a spiritual renewal since 9-11, and that New Yorkers do not flaunt their patriotism if they have it. However, New Yorkers have the highest response for becoming more vigilant about diet and exercise, as well as the highest overall levels of stress on the IES-R, despite denying that they feel stressed.

Interestingly, one-way analyses of variance did not show any significant differences in levels of hyperarousal or avoidance symptoms between any of the groups during January of 2002. In general, responses did not indicate that people were jumpy or easily startled in the wake of 9-11, regardless of where they live. Similarly, they were not trying to deny that the events of 9-11 happened. However, all groups do show that they had increased symptoms of intrusion stress, particularly sleep disturbance. There is statistical evidence that these symptoms of intrusion stress were highest in the group of people who were closest to the attacks.

Communities suffer the ravages of trauma and disasters. In the modern world, communities extend well beyond their geographic borders. Families and work ties can spread throughout a country, nation, or the world. Rapid transportation and communication have made the global village a reality that is evident in every disaster situation. The media plays the largest role in the nation's collective perceptions of the disaster, and future research will help to define the media role and responsibility in the development of cultural stress and anxiety.

Researchers have attempted to develop systems for identifying and treating

victims of disaster. Communal coping and intervention are the subjects of several books which are based upon research. Ursano, McCaughey and Fullerton (1994) make an astounding contribution to the literature in their collection of research articles pertaining to disaster: "Individual and community responses to Trauma and Disaster: The Structure of Human Chaos." The authors' introduction to the book explains the huge task facing those who will assist those suffering from the psychological effects of trauma:

This book aims to improve the understanding of the human experience of trauma at the individual and community levels, and to help the victims of trauma....the editors have sought to impart understanding, order, and predictability to the experience of trauma and disasters in the belief that the way to recovery is through the mastery and structuring of chaotic events. The emphasis is on preparedness, prevention and care through psychiatric and other interventions in both civilian and military settings. This is a book which will inform clinicians, administrators and research workers who recognize that, if disaster plans do not consider the psychological effects of trauma, the consequences will overwhelm all available services and resources, exhausting rescue workers as well as victims. (Ursano et al, 1994)

Ehud Sprinzak, dean of the Lauder School of Government, Policy, and Diplomacy at the Interdisciplinary Center in Herzliya, Israel, is often eerily prescient in "Rational Fanatics (an analysis of the effects of suicide bombers)." He also offers hope. He discusses the mentality of such men as Mohammed Atta and his cohorts who hijacked the planes which attacked the World Trade Center. Although news reports have stated that not all of those Al Qaeda members may have been aware that they were on a suicide mission, some of them certainly were. A commander of a suicide squadron can be deterred, he says, by effective security measures which heighten the possibility of being caught and stopped from fulfilling their mission.

Such security measures also reassure the public. Governments must never forget that terrorism constitutes a form of psychological warfare, and that suicide terrorism is the ultimate expression of this struggle. Terrorism must always be fought psychologically—a battle that often takes place in the minds of ordinary people. Even if governments do not have an immediate operational solution to suicide terrorism, they must convince their citizens that they are not sitting ducks and that the authorities are doing everything they can to protect them. Ordinary people should, in fact, be informed that psychological warfare is being waged against them. Free people who are told that they are being subjected to psychological manipulation are likely to develop strong terrorism antibodies.

In fighting suicide bombers, it is important not to succumb to the idea that they are ready to do anything and lose everything. This is the same sort of simplistic reasoning that has fueled the widespread hysteria over terrorists acquiring weapons of mass destruction (WMD). The perception that terrorists are undeterrable fanatics who are willing to kill millions indiscriminately just to sow fear and chaos belies the reality that they are cold, rational killers who employ violence to achieve specific political objectives. Whereas the threat of WMD terrorism is little more than overheated rhetoric, suicide bombing remains a devastating form of terrorism whose complete demise is unlikely in the 21st century. The ongoing political instability in the Middle East, Russia, and South Asia—including Iran, Afghanistan, Chechnya, and possibly India and Pakistan—suggests that these regions will continue to be high-risk areas, with irregular suicide bombings occasionally extending to other parts of the globe. But the present understanding of the high costs of suicide terrorism and the growing cooperation among intelligence services worldwide gives credence to the hope that in the future only desperate organizations of losers will try to use this tactic on a systematic basis. (Sprinzak, 2000)

Wright and Bartone (1994) are also cognizant of the importance of a strong leader to create a sense of “shared sorrow” in time of national trauma. America has experienced

the exceptional leadership of President Bush and Mayor Rudy Guiliani in helping us share our fears and sorrows, while taking charge and assuring us that “we will not waiver” in our resolve to track down the increasingly elusive Al-Qaeda network.

Implications for Further Research

As we move on in the wake of the events of 9-11, amid the continuing spread of violence and the prospect of further terrorism, it’s so important to gather as much data as possible as soon as possible. There are endless groups and issues to study: children, pregnant women, firefighters; education, health care, salvage and rescue and cleaning efforts, asbestos and contaminant related issues, many of which will lead to litigation. These are general areas that will spawn the need for research in the future. Researchers will be gathering data for analysis ad infinitum. It is hoped that the current research will be useful as a measure of comparison for future studies.

REFERENCES

The American Heritage® Dictionary of the English Language: Fourth Edition.
Boston: Houghton-Mifflin. 2000.

Antonovsky A. (1979) Health, stress, and coping. San Francisco, CA:
Jossey-Bass.

Becker, Julia; Johnston, David; Munro, Adam; Smith, Richard. Effects of the
1995-1996 Ruapehu eruptions on communities in and people's perceptions of volcanic
hazards after the event. The Australasian Journal of Disaster and Trauma Studies. ISSN:
1174-4707. Volume : 2001-1. Retrieved from
<http://www.massey.ac.nz/~trauma/issues/2001-1/becker.htm>. February 15, 2002.

Briere, J. (1997). Psychological assessment of adult posttraumatic states.
Washington D.C.: American Psychological Association. Washington

Cladera, T.; Palma, L.; Penayo, U.; Kullgren, G.; Social Psychiatry & Psychiatric
Epidemiology. Vol 36(3), May (2001). Special Issue. Germany: Springer-Verlag. 108-
114.

De Vries, M. W. (1996). Trauma in cultural perspective. In Van der Kolk et al.,
ed., Traumatic Stress: The effects of overwhelming experience on mind, body, and
society. New York: Guilford Press, 398-413.

Eltman, Frank, Associated Press Writer; Study: Attack Depressed New Yorkers.
Retrieved from
http://story.news.yahoo.com/news?tmpl=story&u=/ap/20020328/ap_on_re_us/attacks_m

ental health 2 on March 28, 2002.

Everly, George, and Mitchell, Jeffrey, “America under Attack: The Ten Commandments of Responding to Terrorist Attacks” (*International Journal of Emergency Mental Health*, 2001, 3 (3), pp. 133-135.

Herlofsen, Pal (1994) “Group Reactions to Trauma: an avalanche accident.’ In Robert J. Ursano, R.J. McCaughey, and C.S. Fullerton (Eds.) *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos*. Cambridge, UK: Cambridge University Press, 248-266.

Holloway, H.C., and C.S. Fullerton. (1994). “The Psychology of Terror and Its Aftermath.” In Robert J. Ursano, R.J. McCaughey, and C.S. Fullerton (Eds.) *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos*. Cambridge, UK: Cambridge University Press, 31–45.

Horowitz, M., Wilner, M., and Alvarez, W. (1979). Impact of Event Scale: A measure of subjective stress. *Psychosomatic Medicine*, 41, 209-218.

Milgram, N., B.R. Sarason, U. Schonpflug, A. Jackson, and C. Schwarzer. (1995). “Catalyzing Community Support.” In S.E. Hobfoll and M.W. deVries (Eds.) *Extreme Stress and Communities: Impact and Intervention*. Dordrecht, the Netherlands: Kluwer Academic, 473–488.

Norton, Amy. Post-Traumatic Stress High in NYC After Sept. 11 Wed Mar 27, 5:24 PM ET , New York (Reuters Health). Retrieved from http://story.news.yahoo.com/news?tmpl=story&u=/nm/20020327/hl_nm/stress_attack_1 (citing study in the *New England Journal of Medicine* April 2002 by Dr. Sandro Galea “New Yorkers Stressed”), April 2002.

O'Neill, HK; Smyth, Joshua. Effects of Written Disclosure on Post-Disaster Psychological Adjustment and Symptomatology (2001) Quick Response Paper #138 retrieved from <http://www.colorado.edu/hazards/qr/qr138/qr138.html>. April 3, 2002.

Pennebaker, J.W. 1993. "Putting Stress into Words: Health, Linguistic, and Therapeutic Implications." *Behaviour Research and Therapy* 31: 539-548.

Pennebaker, J.W., and Harber, K. 1993. "A social stage model of Collective Coping: The Loma Prieta Earthquake and the Persian Gulf War." *Journal of Social Issues* 49 (4): 125-146.

Pfefferbaum, Betty; Call, John A; Lensgraf, S. Jay; Miller, Peteryne D.; Flynn, Brian W.; Doughty, Debby E.; Tucker, Phebe; Dickson, Warren L.: Traumatic Grief in a convenience sample of victims seeking support services after a terrorist incident. *Annals of Clinical Psychiatry*. Vol 13 (1), (2001). Special Issue. US: Kluwer Academic Publishers. 19-24.

Pfefferbaum, Betty; Doughty, Debby E.; "Increased alcohol use in a treatment sample of Oklahoma City bombing victims. *Psychiatry: Interpersonal & Biological Processes*. Vol 64(4), Dec (2001). US: Guilford Publications. 296-303

Pfefferbaum, Betty; Nixon, Sara Jo; Tivis, Rick D.; Doughty, Debby E.; Pynoos, Robert S.; Gurwitch, Robin H.; Foy, David W. "Television Exposure in children after a terrorist incident. *Psychiatry: Interpersonal & Biological Processes*. Vol 64(4), Dec (2001). US: Guilford Publications. 202-211.

Recer, Paul, AP Science Writer, 9-11 Attacks Making Sleep Difficult Tuesday Apr 2, 2002, 1:44 AM ET Retrieved from http://story.news.yahoo.com/news?tmpl=story&u=/ap/20020402/ap_on_he_me/attacks_i nsomnia on April 3, 2002.

Recer, Paul; AP Science Writer , New Yorkers Stressed. Retrieved from www.msnbc.com, April 10, 2002.

Remennick, L.I.; "Immigrants from Chernobyl-affected areas in Israel: The link between health and social adjustment. *Social Science & Medicine*. Vol 54(2), Jan (2002). US: Elsevier Science. 309-317.

Ruben, H.L. (1992). "Interacting With the Media After Trauma in the Community." In L.S. Austin (Ed.) *Responding to Disaster: A Guide for Mental Health Professionals*. Washington, DC: American Psychiatric Press, 125–136.

Shaw, Jon A. & Harris, Jesse J. (1994). Children of war and children at war: Child victims of terrorism in Mozambique. In Rober Ursano et al., ed., *Individual and community responses to trauma and disaster: The structure of human chaos*. Great Britain, Cambridge University Press, 287-305.

Sommerfield, Julia ;"Sleep Disorders" retrieved from www.msnbc.com. MSNBC April 2, 2002 on April 4th 2002.

Sprinzak, Ehud. "Rational Fanatics". *Foreign Policy Magazine*. September/October 2000. Retrieved from <http://www.foreignpolicy.com> . February 22, 2002.

Udwin, Orlee; Boyle, Stephanie; Yule, William; Bolton, Derek; O’Ryan, Dominic. *Journal of Child Psychology & Psychiatry & Allied Disciplines*. Vol 41 (8), Nov 2000. US: Cambridge Univ Press. 969-979.

Ursano, R.J., C.S. Fullerton, and B.G. McCaughey. (1994). "Trauma and Disaster." In R.J. Ursano, B. McCaughey, and C.S. Fullerton (Eds.) *Individual and Community Responses to Trauma and Disaster: The Structure of Human Chaos*. Cambridge, UK: Cambridge University Press, 3–27.

Weiss, D.S., and Marmar, C.R. 1997. "The Impact of Event Scale - Revised." In *Assessing Psychological Trauma and PTSD*, edited by J.P. Wilson and T.M. Keane, 399-411. New York: Guilford Press. Retrieved from <http://www.criminology.unimelb.edu.au/victims/resources/assessment/ptsd/ies-r.html>: January 23, 2002.

Wright, K.M. and Bartone, P.T. (1994). Community responses to disaster: The Gander plane crash. In Ursano, R.J., McCaughey, B.G. & Fullerton, C.S. (Eds.), *Individual and Community Responses to Trauma and Disaster* (267-284). New York, Cambridge University Press.

Yehuda, Rachel; Schmeidler, James; Wainberg, Milton; Binder-Brynes, Karen; Duvdevani, Tamar "Vulnerability to Posttraumatic stress disorder in adult offspring of Holocaust survivors." *American Journal of Psychiatry*. Vol 155 (9), Sep (1998). Pp. 1163-1171).

Appendix

Demographic Questionnaire

This questionnaire and the attached Impact of Events Scale are being administered to people throughout the nation to compare reactions and attitudes following the September 11th World Trade Center attacks and the aftermath of war. The questionnaire will be completed by all applicants within the first ten days of January 2002. All participants are over age 16 and represent a variety of professions and educational backgrounds. Participants under age 18 participate with parental approval. All questionnaires are anonymous. The research proposal has been approved by the Rowan University Institutional Review Board. The questionnaire will take just a few minutes to complete. Thank you for your participation.

PART ONE:

You may write your name or give yourself a code name or number_____

1. What is your occupation?

- a. executive or manager*
- b. professional*
- c. the arts*
- d. academic/ educator*
- e. federal government employee/ military*
- f. state/county employee*
- g. computer/ technical*
- h. service industry*
- i. clerical/administrative*
- j. sales/marketing*
- k. high school student*
- l. college/graduate student*
- m. unemployed*
- n. retired*

*2. How would you describe your job title in words other than above?
(optional)_____*

3. What is your age?

- a. under 18*
- b. 18 to 21*
- c. 22-30*
- d. 31-40*
- e. 41-50*
- f. 51-60*
- g. 61-70*
- h. 71+*

4. What is your level of education?

- __a. professional degree
 - __b. master's degree or certification beyond 4-year degree
 - __c. 4 year college degree
 - __d. associate's degree
 - __e. some college
 - __f. completed high school
 - __g. still in high school
5. Are you male or female? _____
6. Please identify your geographical location, by state of current residence _____. What was your proximity to the World Trade Center or to the Pentagon on September 11th? _____ (or estimate how near you were in miles) _____
7. Are you married? _____ Are you a parent? _____ On a scale of 1 to 10, how important is family to you, 10 being most important _____.
8. Do you subscribe to any news magazines? _____
9. Do you watch news or listen to news on a daily basis? _____ every other day? _____ weekly? _____
10. Did you handle your mail with extra care after the anthrax scares?
-
11. Would you go to New York City or Los Angeles to a large stadium event such as a rock concert or a ballgame if the government announced that there was a "highly credible" terrorist threat against that event, but that security was on high alert? _____
12. On a scale of 1 to 10, 10 being "very comfortable," how comfortable are you about flying on a commercial airline following 9-11? _____
13. a. If you previously patronized a store owned by Middle Eastern immigrants who were never particularly friendly, would you still patronize that store? _____
- b. If you have ethnic characteristics which are or which could be mistaken for Middle-Eastern characteristics (such as a dark complexion), have you experienced increased discrimination or fear of discrimination since the World Trade Center attacks? yes ___ no ___ (explanation optional) _____
-
14. Federal Civil Service jobs range from managerial jobs to all levels of labor force positions in security and postal services, and include federal pensions and benefits. Would you accept a job in the Federal Civil Service right now if you were looking for work? _____ .
- How attractive would you find this type of work on a scale of 1 to 10, 10 being best? _____
15. On a scale of 1 to 10, 10 being "greatly" and 1 being "not at all":
- a. How much do you think you have been affected by the events of September 11? _____
- b. Would you say your daily stress levels have increased since September 11th? _____?
16. If you have felt increased levels of stress since September 11th, have you

gone to a doctor _____,
begun taking medicine for stress-related conditions _____,
experienced changed sleep patterns _____,
gone to a counselor _____,
become increasingly vigilant about diet and exercise _____,
become less vigilant about diet and exercise _____,
increased risk-taking behaviors _____,
renewed your spiritual life _____
become more cynical _____
(other) _____

17. Have you had a flag displayed at your home or have you worn or otherwise displayed any flag paraphernalia since September 11th? _____

18. Have you felt feelings of patriotism since September 11th? yes _____
no _____

19. Have you given extra consideration to the lyrics of the song "America", the National Anthem, or the Pledge of Allegiance? yes _____ no _____

20. Do you support the current administration's policies in Afghanistan? yes _____ no _____ don't have an opinion _____.