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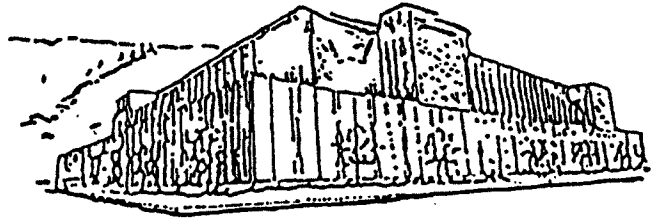
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A Study of Losses and Psychological
Symptomatology in Survivors
Of Hurricane Andrew

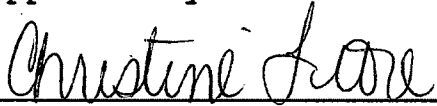
By

Sandra J. MacIntosh

B.S., B.A., East Stroudsburg University, 1990

Presented in partial fulfillment of the requirements
for the degree of
Master of Arts
University of Montana
1995

Approved by:



Chair, Board of Examiners



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Abstract

MacIntosh, Sandra J., M.A., 1995

Psychology

A Study of Losses and Psychological Symptomatology in
Survivors of Hurricane Andrew

Director: Christine Fiore, Ph.D. 

The following research was designed to study the relationship between psychological symptoms and losses incurred as a result of Hurricane Andrew which devastated parts of southern Florida on August 24, 1992. The losses incurred may have been real or perceived by the individual survivor. Instruments which measured posttraumatic stress disorder, depression, anxiety, and losses were administered to 44 teachers in Coral Gables, Florida. Results showed that 14 subjects (31.8%) endorsed symptoms consistent with a diagnosis of PTSD. As hypothesized, males and females showed different types of symptomatology. Fewer males (n=3) endorsed symptoms consistent with a diagnosis of PTSD than did females (n=11). A significant correlation was found between greater PTSD symptomatology and some of the SCL-90R subscales. For males, the SCL-90R subscales related to higher PTSD symptoms were Interpersonal Sensitivity, Depression, and Paranoid Ideation. For females, the related subscales were Psychotocism, Obsessive-Compulsive, Interpersonal Sensitivity, Depression, and Anxiety. The prediction that survivors with greater losses (real or perceived) would have higher levels of symptomatology was not supported. As hypothesized, there was a trend for the majority of survivors with high levels of symptomatology to be in the reconstruction phase of recovery. However, test results did not reach statistical significance. The final prediction that the majority of people with high exposure to the trauma would have higher symptomatology was not supported.

Acknowledgments

This Master's Thesis is dedicated to my family members who survived Hurricane Andrew with aplomb: my sister and brother-in-law, Marian and Arthur, who spent much of their time and resources performing pro bono veterinary work with injured, lost, and abandoned animals; my Aunt Doris who opened her home to displaced church members; my brother, Robert, who maintained his wry sense of humor despite the fact that his home was levelled; and my sister, Susan, who sat in a tree in her back yard, drinking Kendall Jackson Chardonnay, until ceramic roofing tiles became dangerous wind-borne projectiles, had the foresight to make copious amounts of coffee which she could re-heat on her gas grill when the power went out, volunteered much of her time to deliver Red Cross supplies to the Homestead area, and tolerated our homeless brother (and his boxes) for six months. Special thanks to Susan, who actually completed one of my questionnaires (Next time, call me before the airport closes.).

Thank you to all of my friends and family members who have supported me throughout my educational endeavors. I couldn't have done it without you.

Thank you, also, to my Thesis committee members for their ideas, encouragement, and support. Special thanks to Dr. Christine Fiore, my Thesis chairperson, who helped keep me going when denial looked like a much more attractive alternative (Thesis?? What Thesis??).

THANK YOU ALL

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INTRODUCTION

The study of the psychological symptomatology of trauma survivors has been of interest to researchers and scientists since war and natural disasters have plagued mankind. Out of this interest has come the recognition and classification of posttraumatic stress disorders and more recently, a group of symptoms labelled disaster syndrome.

The recognition of neuroses as a consequence of World War II led to the category of Gross Stress Reaction in the first edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM-I) in 1952. This category was not included in the DSM-II. However, the problems of the Vietnam veterans and clinical work with victims of disasters clearly demonstrated a need for a post-traumatic stress category. PTSD was included in the update of DSM-III under anxiety disorders (Kaplan & Sadock, 1989).

The primary feature of post-traumatic stress disorder is the development of characteristic symptoms following a psychologically distressing event that is "...outside the normal range of usual human experience (i.e. outside the range of such common experiences as simple bereavement, chronic illness, business losses, and marital conflict.)" (American Psychiatric Association, 1987). The stressor producing this syndrome is one that would be significantly stressful to anyone, and is usually experienced with fear, terror and helplessness. "The characteristic symptoms

involve re-experiencing the traumatic event, avoidance of stimuli associated with the event or numbing of general responsiveness, and increased arousal." (American Psychiatric Association, 1987)

The trauma itself may be experienced alone or in groups. Types of stressors which may produce this disorder may include: natural disasters such as earthquakes or floods; car accidents; airplane crashes; military combat; fires; collapse of buildings; bombings; torture; or imprisonment. In the general population, it is a rare disorder, occurring in 0.5 percent of men and 1.2 percent of women (Kaplan & Sadock, 1989). The person commonly re-experiences the trauma in the form of distressing nighttime dreams or intrusive thoughts during wakefulness. Symptoms of depression and anxiety are also common. Impairment to the individual may be mild or severe and may manifest itself in nearly every aspect of the person's life.

PTSD can occur at any time after the occurrence of the stressor, but the full syndrome does not typically occur immediately. Anxious or depressed states may occur soon after the trauma, and emotional constriction may predominate in chronic trauma. Typically, weeks, months or even years pass before the complete syndrome is shown (Kaplan & Sadock, 1989). The disorder can occur at any age.

It has been noted that survivors of natural disasters frequently showed symptoms that resembled the posttraumatic

stress symptoms experienced by combat soldiers. However, conclusions about the nature and prevalence of the psychological consequences of natural disasters are varied and contradictory. The reports range from the observation that psychiatric morbidity is common and long lasting to the view that it is rare or nonexistent (McFarlane, 1986).

Furthermore, disaster can be defined in terms of a physical agent and its consequences and seen as a situation causing threat to life, injury, sudden destruction, and loss of life and property. Responses to natural disasters are seen to cover a wide range of types of symptoms, including phobias, anxieties, fears, depression, loss of affect, grief reactions, and physical symptoms, along with interpersonal problems (Green, 1991).

Many researchers of natural disasters have reported a dazed state common in a post-disaster period from which PTSD can develop. Shore, Tatum, and Vollmer called this "disaster syndrome" and it closely parallels PTSD. Additionally, these authors identify phases of symptom presentation. The phases of the disaster syndrome have been labeled heroic, honeymoon, disillusionment, and reconstruction. These stages are seldom discrete and usually overlap and vary in duration and intensity. This variation is believed to be dependent on individual and community resources and the nature and degree of impact of the disaster event (Shore, Tatum, & Vollmer, 1986).

The heroic period usually occurs at the time of impact and in the period immediately thereafter. Emotions are strong, direct, and altruism is prominent. People find themselves being called upon and responding to demands for heroic action to save their own and others' lives and property. People expend major energy in helping others to survive and recover. The most important resources during this phase are family groups, neighbors, and emergency teams (NIMH, 1990).

The honeymoon phase generally extends from one week to three to six months after the disaster. For those who have survived, there is a strong sense of having shared with others a dangerous, catastrophic experience and having lived through it. During this phase, supported by the influx of official and governmental persons who promise all kinds of help, the victims clear the debris and clean out their homes of wreckage with the anticipation that there will soon be considerable help in solving their problems available (NIMH, 1990).

The disillusionment phase generally lasts from about two months to one or even two years. Strong feelings of disappointment, anger, resentment, and bitterness may appear if delays or failures occur and the hopes for, and promises of, aid are not fulfilled. Outside agencies may pull out and some of the indigenous community groups may weaken or become unadaptive. Also contributing to this stage may be

the gradual loss of the feeling of "shared community" as the victims concentrate on rebuilding their own lives and solving their individual problems (NIMH, 1990). Other stage models have labelled the disillusionment phase the recovery stage in which the individual may be tense and apprehensive and show generalized anxiety.

In the reconstruction phase, the victims have come to the realization that they will need to solve the problems of rebuilding their own homes, businesses, and lives largely by themselves and have gradually assumed the responsibility for doing so. During this phase, which generally lasts for several years following the disaster, the appearance of new buildings and the development of new programs serve to reaffirm the victims' belief in their community and in their own capabilities. However, when these are delayed, the emotional problems which appear may be serious and intense (NIMH, 1990). It is in this final stage that posttraumatic stress disorder may develop (Carson & Butcher, 1992).

van der Kolk's description of the "disaster syndrome" includes symptoms such as: the loss of capacity to use community supports; chronic recurrent depression with feelings of despair; psychosomatic symptoms; emotional anesthesia or blocked ability to react affectively; and alexithymia or the inability to recognize and make use of emotional reactions. These symptoms can lead to a robot-like existence and an individual who is devoid of fantasy

and empathy for others (van der Kolk, 1987). Other symptoms related to PTSD are chronic physical illness, alcoholism, and drug dependence.

In spite of much research, there remains marked disagreement about the nature and extent of behavioral response to disaster stress and whether or not this response meets the criteria for posttraumatic stress disorder. The debate can be characterized as having two opposing assumptions which serve as the basis for drawing conclusions from the research findings. One group's position holds that the impact of disasters creates severe, lasting psychological consequences that may cause individual impairment in the short and long-term adjustment of susceptible individuals. This assumption can be called the "individual trauma view" and represents a biomedical perspective (Shore, Tatum & Vollmer, 1986).

The second group's position maintains that the negative psychological impact may be minimal and has been overstated. The latter assumption can be called a "social fabric view", and represents a sociological viewpoint (Shore, Tatum, & Vollmer, 1986). In general, psychiatric studies of disaster have supported the individual trauma view, but the conclusions have been criticized for having a diagnostic method based on unstructured interviews, poor interrater reliability, variable sampling procedures, and litigation as confounding factors. Studies which support the social

fabric view have not demonstrated a positive correlation between disaster and psychiatric morbidity. They have relied more heavily on non-specific measures of distress and demoralization, usually by assessing short-term symptoms of anxiety and depression (Shore, Tatum, & Vollmer, 1986). This proposed study is an attempt to integrate both the individual-trauma and social-fabric views.

Due to the fact that disaster syndrome closely parallels PTSD, but does not duplicate all the symptoms, recent studies have emphasized the limitation of current PTSD criteria in the DSM-III-R for survivors of disasters. Shore, Vollmer, and Tatum (1989) propose a two dimensional framework for understanding post-traumatic stress disorder based on: 1) repetition of traumatic-related images, affects, somatic states, actions, and 2) defensive withdrawal with denial of the trauma including psychogenic amnesia, emotional numbing and suppressive and/or avoidant behaviors. They compared the DSM-III-R approach of aggregating symptoms to an approach that differentiated symptoms into two subtypes of reexperiencing and denial. The DSM-III-R classification of reexperiencing or denial was more useful in understanding PTSD and its origins among Vietnam veterans exposed to war trauma. Veterans tend to reexperience the trauma with symptoms of denial and withdrawal, whereas natural disaster victims tend to reexperience with symptoms of anxiety and depression. This

difference in the classification of reexperiencing may underestimate the prevalence of PTSD among disaster victims (Shore, Vollmer, & Tatum, 1989). The research of Shore, Tatum, and Vollmer (1989) on survivors of the Mount Saint Helens volcano strongly support this conclusion.

To summarize, the symptom analysis and comparison with a broader definition of the disaster syndrome highlight a limitation for the present diagnostic criteria for PTSD. Current PTSD criteria evolved from a predominant focus on combat PTSD from Vietnam veterans exposed to war trauma. Using these criteria, symptoms of anxiety and depression are underrepresented and underreported. In addition, the high association of concurrent psychiatric disorders emphasizes both premorbid vulnerability for PTSD and the diversity of the behavioral manifestation (Shore, Vollmer, & Tatum, 1989).

The revision of stress disorders for the DSM-IV includes a field trial for Disorders of Extreme Stress not otherwise specified (DESNOS), which include cognitive, affective, and behavioral features related to repeated or chronic traumatic exposure, or both (Green, 1991). Whereas the current DSM-III-R criteria for a diagnosis of PTSD require six symptoms (one reexperiencing, three denial, and two arousal), the new version of the diagnosis may require only five. It is suggested that a broader conceptualization of posttraumatic states may be more helpful when addressing

the more general notions of mechanisms involved in disaster/trauma response and vulnerability or risk factors associated with outcome. This notion would include the current symptoms of PTSD plus anxiety, depression, phobias, fears, loss of affect, grief reactions, physical symptoms, and interpersonal problems (Green, 1991). Focusing solely on PTSD as a diagnosis in disaster victims is likely to provide a low yield and miss important mental health problems such as depression and anxiety. This change in DSM criteria should aid in the diagnosis of disaster syndrome. In this proposed study, this broader definition will be encompassed.

Disaster Research Studies

Research of natural disasters has contributed to increased understanding of the relationship between trauma and symptomatology. "The etiology of PTSD combines the interaction of many factors, including the type of stressor, the personality of the individual involved, and the social environment of the traumatic and post-traumatic period.", (Kaplan & Sadock, 1989). Among the diagnostic criteria in the DSM-III-R is the requirement of a stressor of severity to produce significant symptoms of distress in most people. The stressor itself is usually insufficient to cause the disorder, therefore, most individuals who experience a trauma do not develop the disorder. It has been suggested that "...it was not the intensity of the experience but the

meaning for the individual that posed the challenge and generated the affective response that caused the ultimate post-traumatic adaptation.", (Krystal, 1978). Krystal's reviews of World War I and II trauma victims and his study and treatment of holocaust survivors led to the theory that PTSD is the response of the whole personality to overwhelming stress, superimposed on the "psychic reality" of the individual. Others, such as McFarlane (1986), also refer to the complexity of the disaster symptom relationship.

Following research of an Australian bush fire, McFarlane (1986) stated that the risk of developing a psychiatric disorder following a disaster is influenced by the extent of personal and property losses. However, his research of this disaster does not directly investigate the relationship between the extent of loss and symptomatology. Three of the most influential studies of psychological effects of natural disasters are reviewed to elucidate the nature of this research and its findings.

Buffalo Creek

Buffalo Creek is a small mining community located in an 18-mile-long valley in West Virginia. In February of 1972 it had been raining for several days, and there was concern about the safety of the slag dam built at the top of the valley by a coal mining company. However, the coal company had assured residents there was nothing to fear. Early on

Saturday morning, the 26th of February, the dam collapsed pouring millions of gallons of water and sludge into the valley below. The flood left 125 people dead and thousands homeless. Ill-conceived relocation efforts following this event is believed to have compounded the trauma and probably increased the risk for subsequent problems. These included the separation of kin and nuclear families, multiple moves of families, and the decision of the West Virginia government to build a new highway up the middle of the valley, preventing many people from returning to their land (Green, Lindy, Grace, et al., 1990).

A number of residents felt that the fault lay with the coal company that constructed the dam in an unsafe manner. They joined in a lawsuit against the company, which included claims of psychic impairment as well as property damage and wrongful death. The lawsuit was settled out of court in the summer of 1974 and awards for psychological damages were made to the plaintiffs.

An assessment team used the Psychiatric Evaluation Form (PEF) and the Structured Clinical Interview for DSM-III (SCID) to interview all 381 plaintiffs. In 1986, 120 of these people, 46 men and 74 women, were again assessed with the same instruments. The event can be classified as both an acute event, on the day the dam collapsed, and a chronic one, involving ongoing stressors and disruption over the next several years. Information was originally collected to

be used in a suit for psychic damage, and it could be argued that secondary gain accounted for the elevation of the symptoms in 1974, before settlement of the lawsuit. It is also likely that the giving of depositions and uncertainty about the outcome of the lawsuit kept the flood and its memories alive in the minds of the subjects and served to activate or maintain symptoms (Green et al., 1990).

The final (1986) rate of PTSD was 28% across the two genders combined, down from 44% in 1974. All of these cases were flood related PTSD. Initially (in 1974), women scored higher than men on both clinical ratings and self-report, except on Belligerence and Alcohol Abuse. However, in 1986, scores for the two genders were nearly identical on the clinical ratings, and women were slightly lower on the symptom checklist. The changes for women then were more pronounced than for men. Although the improvement was quite marked, the 1986 scores were not necessarily in the "normal" range (Green et al., 1990).

Focusing on the PTSD/no PTSD diagnosis, 61% of the sample had the same diagnosis, either PTSD (17%) or no PTSD (44%), in 1974 as in 1986. Twenty-eight percent of the sample went from having the diagnosis in 1974 to not having it in 1986, fitting the overall finding of decreased pathology over time. However, 11% of the sample, who did not meet criteria for PTSD in 1974, did so in 1986 (Green et al., 1990).

The only demographic factor related to stability or change in PTSD scores was race. There was a higher proportion of blacks in the groups of subjects who showed delayed PTSD symptoms (44%) and a much lower proportion who had recovered (6%) compared to whites. This leads to the conclusion that they developed PTSD after 1974 or suffered it cyclically and therefore did not meet the criteria during the first assessment. While part of this was explained by differences in stressor experience, (no blacks died in the flood because they lived further from the dam), not all race differences disappeared when stressors were controlled. At the time the lower pathology exhibited by black subjects was ascribed to the prominent role they played in organizing the lawsuit. This, in turn, appeared to be related to a commonly held view among blacks that God had protected them during the flood. It is certainly possible that this role was psychologically protective initially, at the time of the lawsuit. However, the community support around the lawsuit may have waned, and the more typical prejudicial attitudes may have resurfaced, raising the risk among the black population for manifestation of PTSD symptoms (Green et al., 1990).

This study demonstrates that the psychological symptoms suffered from a disaster can affect persons for years after the incident. In addition to individual factors that might differentiate group members, there were also factors

operating at a community level which would be likely to interfere with recovery and maintain relatively high symptom levels for the group as a whole. As noted, there was a high death toll and the community remained disrupted for several years. Unable to recover by itself, it needed outside help, and the proportion of the community that was affected was quite large. Recent findings by Norris (in press) have lent empirical support to the importance of community variables in that they have shown more severe distress in individuals who lived in communities undergoing high levels of destruction (Green et al., 1990).

Mount Saint Helens

The Mount Saint Helens volcanic eruption on May 18, 1980 with subsequent ash fall, flooding, and potential long-term threat created a unique chance to study the behavioral responses to disaster. The periodic or persistent threat of flooding became the greatest concern from this event.

One psychiatric study involved two rural northwest logging communities, Castle Rock, Washington and Estacada, Oregon. The former area was severely affected by the eruptive activity of Mount Saint Helens and served as the exposed community. Estacada represented a comparable northwest community which was unaffected by the eruptions. The Diagnostic Interview Schedule (DIS) was used to assess the total subject pool of 1,025 people (Shore, Tatum, & Vollmer, 1986).

Individuals who reported either significant residential damage, a total dollar loss of at least \$5,000.00, or the death of a family member or other relative due to Mount Saint Helens were identified. The subjects were divided into three groups: high exposure, low exposure, and control. The 138 subjects who suffered at least \$5,000.00 in eruption related property loss or death of a family member or close relative were defined as high exposure. The remaining 410 subjects in the exposed community were classified as low exposure, and the 477 Oregon subjects constituted the control group (Shore, Tatum, & Vollmer, 1986).

Analysis of the data found three disorders to be significantly associated with disaster stress: generalized anxiety, major depression, and PTSD. In this study they are referred to as "Mount Saint Helens-Disorders" (MSH-Disorders). Exposed females demonstrated elevated onset levels for all three disorders, while males only evidenced elevated levels of generalized anxiety disorder. Furthermore, for each exposure category the onset rates observed among the women were approximately twice as high as those seen among the men. Examination of the post-eruption onset pattern for the MSH-Disorders showed that all of the disaster-related onsets appeared to occur within the first two years following the disaster. Among individuals experiencing a new onset of one of the MSH-Disorders following the eruption, the tendency was for duration of

symptoms to be greatest among the high exposure subjects. For those individuals with generalized anxiety or depression prior to the eruption, symptom recurrence rates post-disaster for one or more of the MSH-Disorders were significantly higher for exposed women but not for exposed men (Shore, Tatum, & Vollmer, 1986).

The community lifetime rate of post-traumatic stress reaction, when measured by the DSM-III-R diagnostic criteria, was 2.9% for men and 3.3% for women, which is higher than rate in the general population. This can also be compared with a much higher rate of disaster stress response syndromes for Mount Saint Helens victims when the disorders include generalized anxiety disorder and depression in addition to PTSD. With the broader definition of MSH-Disorders, the onset of new disorders among the high exposure group on the first year posteruption was 11.1% for men and 20.9% for women (Shore, Vollmer, & Tatum, 1989). This demonstrates the importance of a broader classification of disaster stress reactions and the degree to which loss can affect psychological symptomatology.

South Australia Bushfire

The study of unsolicited subjects presenting to a psychiatric service following a natural disaster was thought to help clarify important conceptual and methodological issues central to disaster research. First, if one of the more common diagnoses in unsolicited patients was PTSD, this

would challenge the proposition that psychiatric illness is virtually nonexistent following natural disasters, as this condition can be directly linked to its precipitant.

Secondly, documentation of the longitudinal history of psychiatric disorders in unsolicited patients would assist in alerting the researchers to the problems of the timing of cross-sectional studies. The delayed presentation of Vietnam war veterans suggests that a prolonged follow-up of any disaster-affected population may be necessary before conclusions are reached about the absence of disorder (McFarlane, 1986).

Thirdly, the clinical importance of symptoms experienced by disaster victims has received little examination. A significant proportion of any population exposed to major adversity will be distressed and will develop stress-related symptoms. The degree to which such symptoms are indicative of psychiatric disorder has not been ascertained, and little is known about whether people who experience such symptoms see themselves as being ill and in need of treatment. Sociologists have legitimately questioned whether these symptoms are indicative of disorder or rather represent the problems with living that they see as very common after natural disasters (McFarlane, 1986).

A bushfire disaster occurred in South Australia on February 16, 1983, which destroyed 2,804 square kilometers of bush, grazing land, orchards, and national parks.

Twenty-eight lives were lost, and 385 houses were damaged or destroyed. A total of 2,697 adults and children registered as victims.

The study by McFarlane (1986) was based on psychiatric records of 35 patients who presented themselves for treatment in 1983 and 1984 and had been exposed to the bushfire. All diagnoses were made using the criteria of DSM-III. Clinically, four groups of patients emerged. The 35 patients were categorized according to; the average timing of presentation for treatment; their phenomenology; and the role of the disaster in the etiology of the disorders.

Contrary to prediction, very few cases presented in the first days after the disaster. In fact, the majority of people did not date the beginning of their symptoms until two months after the disaster, and the presentation for treatment of new cases was still occurring two years after the disaster (McFarlane, 1986).

Group one, which consisted of six patients, presented early, an average of 7 weeks after the fire, and their exposure to it was low. They were diagnosed with diverse disorders which were more related to preexisting conditions or other current stressors (McFarlane, 1986).

The second group, consisting of eleven patients, presented an average of 18 weeks after the disaster, had personal experiences of the fire and had suffered major

property losses. These patients were particularly aware of their symptoms or their illness was severe enough to prevent purposeful attempts at reconstruction of their lives and homes. The general behavioral signs of the group were anxiety and depression, and four of the eleven were diagnosed with Acute PTSD (McFarlane, 1986).

The fifteen people in group three had had the most intense exposure to the disaster, and three were the next of kin of people killed in the fire. These patients sought treatment an average of 58 weeks after the disaster, although their symptoms had been present an average of 41 weeks before presentation. Consultation was only sought with the realization that their disorder was worsening with time. Constricted affect and interpersonal withdrawal were prominent clinical features. Thirteen of the fifteen people in this group were diagnosed as suffering from Chronic PTSD (McFarlane, 1986). (McFarlane distinguishes Acute PTSD as having an earlier onset than the more delayed onset typical of Chronic PTSD.)

The fourth group consisted of three people who decompensated when subsequent life events triggered unresolved feelings and memories of the fire. Their clinical presentation was anxious and depressed, and of the three, one was diagnosed with Acute PTSD and one with Chronic PTSD. Between all of the groups, of those diagnosed with PTSD, 13 were female and 6 were male (McFarlane,

1986).

This study by McFarlane suggests that posttraumatic stress disorders are likely to arise following disasters. In many cases there is a latency period between the exposure to a disaster and the onset of PTSD. The low level of detection of this disorder by the health care workers who had first contact with the patients in this study means that unless specific steps are taken this disorder may be missed by researchers. Questionnaires, unless specifically designed to measure PTSD, may miss much of the morbidity associated with this disorder.

The Buffalo Creek research shows how important the community and an individual's sense of belonging to it can affect their psychological well-being for many years. With severe disruptions in social networks, survivors may have lacked sufficient coping abilities for the recovery effort. Such abilities would normally help a survivor to process this kind of event, and their lack may have put at least some residents at a disadvantage in this particular situation.

The previously cited studies demonstrate: that a broader classification of PTSD-type symptoms for disaster survivors is clinically useful (Mount St. Helens); that the degree of loss or perceived loss (such as community) suffered by individuals may have an important impact on psychological functioning (Buffalo Creek); and that symptoms

of distress can linger for many years (Australian brushfire). Although McFarlane posited that the degree of personal and property loss suffered by individuals has an effect on psychological functioning, this premise was not tested in his previously cited study. It is important that this relationship be researched further.

Hurricane Andrew

Hurricane Andrew struck the southeast coast of Florida on August 24, 1992 and made its' mark as the most devastating natural disaster ever to strike the United States. No one knows exactly how strong Andrew's winds gusted as the wind measuring instrument at the National Hurricane Center in Coral Gables (near the eye of the storm) blew off the building. Sustained winds were measured at 145 mph, with gusts of 175. However, Hurricane Center officials concede that the winds may have approached 200 miles an hour in places (Gore, 1993).

Andrew demolished more than 80,000 dwellings and another 55,000 were less than 50% destroyed and still considered livable. Despite a miraculously low death count, 43, in the latest analysis, Andrew destroyed 30 billion dollars worth of property (Gore, 1993).

It can easily be assumed that some of the residents who survived the hurricane suffered emotionally from their losses. Personal conversations with this researcher's family members in Miami supported this; however, at the time

of the inception of this study there was no empirical data available.

RESEARCH QUESTION

The current state of PTSD and disaster research has elucidated many important features and consequences of trauma. However, despite implications that personal perceptions of a (specific) traumatic event and the degree of loss influence the presence and degree of PTSD or disaster syndrome symptoms, the nature of this relationship has not been addressed directly.

RESEARCH

I conducted an post-facto study of survivors of Hurricane Andrew which devastated parts of southern Florida on August 24, 1992. I tested: 1) Krystal's theory that it is not the intensity of the experience itself, but the meaning it held for the individual and 2) McFarlane's statement that the risk of developing a psychiatric disorder is influenced by the extent of personal and property loss. I limited my subjects to those who survived hurricane Andrew. However, I could not assume that the degree of exposure was the same for all survivors, therefore degree of exposure was measured and any measurable differences of PTSD or disaster syndrome symptoms was attributed to exposure and/or individual differences.

HYPOTHESES

1. It was predicted that survivors who suffered significant

losses would show symptoms of PTSD or disaster syndrome:

- a) The greater number of losses would have greater symptomatology.
- b) The greater degree of losses would have greater symptomatology.

2. It was predicted that males and females would show different types and degrees of symptomatology.

3. It was predicted that the majority of survivors with high symptomatology would be in the reconstruction phase of recovery.

4. It was predicted that the majority of people with high exposure would have higher symptomatology. However, the higher the degree of perceived loss will outweigh the effects of the degree of exposure.

METHOD

Study Design

The statistical analyses consisted of comparisons of group membership (i.e.: male or female; PTSD or no PTSD; clinical symptoms or non-clinical symptoms; disaster syndrome or no disaster syndrome) and the dependent variables of theoretical interest. The analyses conducted were: PTSD and the Loss Questionnaire; PTSD and the Life Experiences Survey; SCL-90-R and the Loss Questionnaire; Disaster Syndrome (as defined by a score of at least 6 on the PTSD Questionnaire, a T score of 65 on the Depression and Anxiety subscales of the SCL-90-R) and the Loss

Questionnaire; and Disaster Syndrome and the Life Experiences Survey.

Correlational analyses were also conducted to investigate the relationship between continuous dependent measures. All results were corrected for the family wise error rate. Chi-square analyses were conducted to examine the significance of frequency of occurrence of psychiatric symptomatology and whether or not one believed they were going to die in the exposure to the hurricane, and PTSD symptomatology and stage of recovery.

Subjects

The subjects were teachers currently employed at Ponce de Leon Junior High School and Coral Gables Senior High School, both located in Coral Gables, Florida. Permission to survey the teachers was received from the principals of the schools. (See Appendices A & B) There are approximately 210 teachers employed in both schools. A response rate of 50% will ensure an N=100 which is deemed acceptable due to the sensitivity of the measures used. An N of 32 was considered acceptable by the thesis committee. Pilot work conducted by this researcher indicated that many post-Hurricane Andrew survivors did not want to think about the experience.

Measures

The instruments used in this study were the Symptom Checklist 90-R (SCL 90-R), the Life Experiences Survey

(LES), a PTSD Symptom Questionnaire, and a Loss Questionnaire. The SCL 90-R and the LES are instruments frequently used in research and the latter two instruments were designed by this researcher.

As mentioned in the disaster research studies, both the Structured Clinical Interview for DSM-III-R (SCID) and the Diagnostic Interview Schedule, especially the version included in the Disaster Supplement (DIS/DS), have been used to measure PTSD in disaster research and other studies of PTSD. Customarily, the DIS/DS has been used in community studies and the SCID has been used with clinical populations. The DIS is designed to be administered by trained lay persons, and the SCID is meant to be administered by clinicians (Green, 1991). While comprehensive, they're time consuming for subject and administrator. Due to the labor intensiveness of these instruments, neither of them were used in this study.

Symptom Checklist 90-R

The SCL-90-R is a 90-item self-report symptom inventory developed by Leonard Derogatis. (See Appendix C.) It is designed to reflect the psychological symptom status in a broad range of individuals, ranging from non-patient "normal" respondents, through medical patients of various types, to individuals with psychiatric disorders. A preliminary version of the scale was introduced in 1973 and, based on early clinical experiences and psychometric

analyses, was modified and validated in the present R(evised) form (Derogatis, 1992).

Each item of the "90" is rated on a 5-point scale of distress (0-4), ranging "not-at-all" at one pole to "extremely" at the other. The "90" is scored and interpreted in terms of 9 primary symptom dimensions and 3 global indices of distress. These are labeled:

- I. Somatization
- II. Obsessive-Compulsive
- III. Interpersonal Sensitivity
- IV. Depression
- V. Anxiety
- VI. Hostility
- VII. Phobic Anxiety
- VIII. Paranoid Ideation
- IX. Psychoticism

Global Severity Index (GSI)
Positive Symptom Distress Index (PSDI)
Positive Symptom Total (PST)

The global indices have been developed and added to provide more flexibility in overall assessment of the respondent's psychopathologic status, and research using analogues of these measures confirms the rationale that the three indicators reflect distinct aspects of psychological disorder (Derogatis, 1992).

Reliability measures concerning the 9 primary symptom dimensions of the SCL-90-R are essentially of two types: Internal Consistency and Test-Retest. The former serves to measure the homogeneity or consistency with which the items selected to represent each symptom construct actually reflect the underlying factor; test-retest reliability is

essentially a measure of stability of measurement across time.

The internal consistency measures for the 9 dimensions were calculated from the data of 219 "symptomatic volunteers". The particular measure used was coefficient alpha which is a multipoint variation of the Kuder-Richardson formula. This approach to reliability treats the within-form correlations among the items as analogous to correlations between alternate forms, and assumes that the average correlation among existing items would be equivalent to the correlation among items in the hypothetical alternate form. All of the coefficients in the present set were quite satisfactory ranging between a low of .77 for Psychoticism to a high of .90 for Depression (Derogatis, 1992).

Test-retest reliability measures consistency in a different fashion; here the concern is with stability or equivalence through time. As longer periods of time elapse there is greater opportunity for effects to change the status quo, and typically, stability coefficients are inversely related to elapsed time between tests. The test-retest coefficients presented here were obtained from a sample of 94 heterogeneous psychiatric outpatients who were assessed during an initial evaluation visit and reassessed one week later, prior to their first therapeutic hour. The majority of these coefficients hover between .80 and .90, which is an appropriate level for measures of symptom

constructs (Derogatis, 1992). Several studies have contrasted the SCL-90-R with other established multidimensional measures of psychopathology in an effort to determine the degree of equivalence revealed between measures of like constructs. Derogatis, Rickels and Rock (1976) contrasted the dimension scores of the "90" with scores from the MMPI. In this study the sample consisted of 119 symptomatic volunteers, and the MMPI, in addition to being scored for the usual clinical scales, was also scored for Wiggins content scales, and the cluster scales of Tryon (Derogatis, 1992).

The correlations ranged from a low of .40 in the Phobic Anxiety scale to a high of .75 on the Depression scale. Each dimension had its highest correlation with a like construct, except in the case of Obsessive-Compulsive, for which there is no directly comparable MMPI scale. Results of the study reflected a high degree of convergent validity for the "90" (Derogatis, 1992).

The Life Experiences Survey (LES)

The LES is a 57-item self-report measure developed by Sarason, Johnson, and Siegel in 1978 which allows respondents to indicate and evaluate events that they have experienced during the past year. It is based on the Holmes and Rahe (1967) social readjustment rating scale, but includes different events as well as allowing the subject to rate various aspects of events that have occurred. The

format of the LES asks subjects to rate separately the desirability and impact of events that they have experienced. The subjects were asked to indicate those events experienced during the past year (0-6 months or 7 months-one year) as well as (a) if the event was viewed as being positive or negative and (b) the perceived impact of the particular event on the subject's life at the time of occurrence. Additionally, the format of the LES allows for separate measures of positive and negative life changes. This makes this instrument appropriate for use in research concerning how people deal with the stresses and strains of modern life. For the purposes of this study, respondents were asked to note which events were a direct result of their exposure to Hurricane Andrew. (See Appendix D.) Ratings on the LES are made on a 7-point Likert scale ranging from extremely negative (-3) to extremely positive (+3).

Two test-retest reliability studies of the LES have been conducted, both involving subjects from undergraduate psychology classes. Pearson product-moment correlations were computed to determine the relationships between scores obtained at the two testings. Test-retest correlations for the positive change score were .19 and .53 (p less than .001). The reliability coefficients for the negative change score were .56 (p less than .001) and .88 (p less than .001). The coefficients for the total change score were .63 (p less

than .001) and .64 (p less than .001). This indicates that negative and total change scores, derived from this scale, are reasonably reliable over a 5 to 6 week time interval, although the positive change score appears to be less stable (Sarason, Johnson, & Siegel, 1978).

Posttraumatic Stress Disorder (PTSD) Self-Report

Questionnaire

The PTSD Questionnaire is a an 18-item checklist designed by this researcher following the diagnostic criteria of the Diagnostic and Statistical Manual of Mental Disorders III-R (American Psychiatric Association, 1987) and the DSM-IV (American Psychiatric Association, 1991, work in progress). Statements are made about current feelings or symptoms and respondents may choose an answer of "never", "sometimes", or "always" to denote the frequency with which they have these feelings or symptoms. (See Appendix E.) This measure will be used to obtain self-report data on PTSD symptoms.

Loss Questionnaire

The loss questionnaire is a 12-item checklist designed by this researcher in response to a fill-in-the-blank questionnaire which was previously distributed to survivors in Florida concerning losses suffered due to Hurricane Andrew. Losses are listed on the current survey and respondents are requested to rate the degree of importance on a 7-point Likert-type scale which rates the impact from

"No Importance" to "Tremendous Importance". (See Appendix F.) This measure will be used to determine the number of losses for survivors and the individual's perceived experience of that loss.

RESULTS

The results are based on the statistical analyses of questionnaires completed by 15 males, and 29 females for a total of 44 subjects. Questionnaires were completed, primarily by teachers, 10-17 months following Hurricane Andrew.

PTSD

A frequency analysis of diagnosis of PTSD, based on the PTSD checklist, revealed that an n of 30 (68.2%) did not report symptoms consistent with a diagnosis of PTSD, while an n of 14 (31.8%) did report symptoms consistent with a diagnosis of PTSD. A chi-square analysis of the frequency of a PTSD diagnosis and gender distribution was non significant ($\chi^2 = 1.54$; $p > .05$). See Table 1 for summary. A 2-tailed t-test performed to discern differences in total PTSD symptomatology in men (N=15) and women (N=29) was non significant ($t = -1.46$; $p > .05$). See Table 2 for means and standard deviations.

SCL-90R Scores and Gender

Levels of symptomatology, as measured by the SCL-90R, were examined for the entire subject pool by gender. Two-tailed t-tests revealed that neither the Global Severity

Index or any of the SCL-90R subscales reached significance. Following are the individual t values for each subscale and the Global Severity Index: Somatization ($t = -1.57$; $p > .05$); Obsessive-Compulsive ($t = -.45$; $p > .05$); Interpersonal Sensitivity ($t = -.87$; $p > .05$); Depression ($t = -.67$; $p > .05$); Anxiety ($t = -.82$; $p > .05$); Hostility ($t = .31$; $p > .05$); Phobic Anxiety ($t = -1.04$; $p > .05$); Paranoid Ideation ($t = -.57$; $p > .05$); Psychoticism ($t = -.62$; $p > .05$); and the Global Severity Index ($t = -.92$; $p > .05$). See Table 3 for means and standard deviations.

PTSD and SCL-90R Scores

Two-tailed t-tests were performed to discern if subjects who met the diagnostic criteria for PTSD would have higher levels of symptomatology, as evidenced by scores on the SCL-90R, than those who did not reach PTSD criteria levels. Subscales which did not reach significance were Paranoid Ideation ($t = -1.71$; $p > .05$), Phobic Anxiety ($t = -1.49$; $p > .05$), and Somatization ($t = -1.96$; $p > .05$). Following are the t values for individual subscales and the Global Severity Index which reached significance: Obsessive-Compulsive ($t = -3.61$; $p < .01$); Interpersonal Sensitivity ($t = -2.76$; $p < .01$); Depression ($t = -3.41$; $p < .01$); Anxiety ($t = -2.81$; $p < .01$); Hostility ($t = -2.13$; $p < .05$); Psychoticism ($t = -3.17$; $p < .01$); and the Global Severity Index ($t = -4.03$; $p < .01$). See Table 4

for means and standard deviations.

PTSD and SCL-90R Scores by Gender

A Pearson correlation was computed to compare the level or degree of PTSD symptoms (levels may have been higher than needed to reach diagnostic criteria as presented in the previous section) to symptomatology as evidenced by the SCL-90R by sex. For males, the Interpersonal Sensitivity, Depression, and Paranoid Ideation subscales all revealed positive significant relationships with the degree of PTSD symptomatology ($p < .05$). The Global Severity Index also showed significance ($p < .05$). The correlational analysis for women revealed that the Psychoticism subscale was significantly positively related to the degree of PTSD symptoms ($p < .05$). The subscales of Obsessive-Compulsive, Interpersonal Sensitivity, Depression, and Anxiety also showed significant positive relationships with PTSD symptoms ($p < .01$). In addition, the Global Severity Index revealed a significant relationship with the level of PTSD symptomatology ($p < .01$). See Table 5 for a summary of the individual subscale scores for men and women. These subscale scores, for men and women, indicate that a higher level of PTSD symptomatology is related to a higher score on the aforementioned subscales of the SCL-90R.

Loss

Contrary to the hypothesis, the Pearson correlation between subjects' amount of loss as reported in dollars and

subjects' degree of loss as reported in degree of importance to them revealed no statistically significant relationship. See Table 6 for a summary. A 2-tailed t-test revealed no significant relationship between the perceived degree of loss and levels of symptomatology consistent with a diagnosis of PTSD ($t = -1.25$; $p > .05$). See Table 7 for means and standard deviations. The 2-tailed t-test examining the relationship between the actual dollar loss and symptomatology levels consistent with a diagnosis of PTSD did not reach statistical significance ($t = .38$; $p > .05$). See Table 8 for means and standard deviations. A correlational analysis of the amount of dollar loss and symptomatology as evidenced by scores on the SCL-90R did not reach statistical significance. Additionally, a correlational analysis of the perceived degree of loss and symptoms on the SCL-90R did not reach significance. See Table 9 for individual scores.

Disaster Syndrome and Loss

"Disaster Syndrome" was defined as a score of at least 6 on the PTSD questionnaire and T scores equal to or greater than 65 on the Depression and Anxiety subscales of the SCL-90R. A 2-tailed t-test revealed no significant relationship between disaster syndrome and the amount of loss in dollars ($t = .55$; $p > .05$). See Table 10 for means and standard deviations. In addition, a 2-tailed t-test examining disaster syndrome and the perceived degree of loss

was non-significant ($t = 29$; $p > .05$). See Table 11 for means and standard deviations.

Recovery Stage

A chi-square analysis of subjects with and without symptoms of PTSD consistent with a diagnosis of PTSD and frequency of self-reported stage of recovery was performed. Of the 21 responding subjects who did not report symptoms consistent with a diagnosis of PTSD, 18 reported being in the reconstruction phase of recovery. As hypothesized, of the 14 subjects who did report symptoms consistent with a diagnosis of PTSD, all reported being in the reconstruction phase of recovery. However, test results did not reach statistical significance ($X = 3.25$; d. f. = 1; $p > .05$). See Table 12 for a summary.

Exposure

A chi-square analysis was performed for subjects with or without levels of symptomatology consistent with a diagnosis of PTSD and their exposure to the hurricane, as measured by a self-report statement indicating whether or not they thought they were going to die. Of those who did not report levels of symptoms consistent with a diagnosis of PTSD ($N=29$), 7 thought they were going to die, and 22 did not. Of those subjects who did report symptomatology consistent with a diagnosis of PTSD ($N=14$), 5 thought they were going to die and 9 did not. These scores are not statistically different ($X = 61$; d. f. = 1; $p > .05$).

See Table 13 for a summary.

Further analysis of the exposure variable was performed by a comparison of SCL-90R symptomatology and whether or not subjects thought they were going to die. Twelve subjects reported thinking they would die while 31 did not. T-tests were performed to discern if the degree of exposure to the hurricane, as measured by whether or not they thought they were going to die, would have a significant relationship with the SCL-90R subscales. Significance was reached on the Anxiety subscale ($t = 2.05$; $p < .05$) and the Interpersonal Sensitivity subscale ($t = 2.35$; $p < .05$). Following are the T scores for individual subscales on the SCL-90R and the Global Severity Index which did not reach significance: Somatization ($t = .14$; $p > .05$); Obsessive-Compulsive ($t = .27$; $p > .05$); Depression ($t = .50$; $p > .05$); Hostility ($t = 1.72$; $p > .05$); Phobic Anxiety ($t = .11$; $p > .05$); Paranoid Ideation ($t = .47$; $p > .05$); Psychoticism ($t = .00$; $p > .05$); and the Global Severity Index ($t = .82$; $p > .05$). See Table 14 for means and standard deviations.

Life Experiences Survey

Upon inspection of respondents' answers on the Life Experiences Survey, it became clear that many subjects did not complete the survey in the requested manner. Therefore, any analyses including this measure were deemed uninterpretable.

DISCUSSION

Self-report questionnaires were distributed, primarily to teachers, in the Dade County Public School System (Miami, Florida) in order to measure levels of psychological symptomatology following the devastation of Hurricane Andrew which occurred on August 24, 1992. Questionnaires were completed in a period of 10-17 months following the hurricane. Of the 240 questionnaires distributed, 44 were returned and analyzed. This low response rate may be indicative of the pressure and time constraints under which teachers were functioning. It may also be a result of the fact that many survivors of the hurricane did not want to think about or talk about their experiences. This statement was supported by conversations between residents of Miami and this author who spent the summer of 1994 in the Miami area. Although unscientific, it appeared that survivors who had suffered major financial or personal losses still chose not to discuss the hurricane. Furthermore, it became apparent that, among residents, there has become a chronological time line, "Pre-Andrew" and "Post-Andrew".

The survivors of Hurricane Andrew who completed the questionnaires indicated that some were, indeed, suffering from psychological trauma as a sequelae to the event. Endorsement of symptoms consistent with a diagnosis of post-traumatic stress disorder (PTSD) was received by 31.8% of the respondents. This is significantly higher than the

prevalence rate for the general population, which is 0.5 % for men and 1.2% for women (Kaplan & Sadock, 1989).

However, as stated in the Diagnostic and Statistical Manual of Mental Disorders, Fourth Edition (American Psychiatric Association, 1994), studies of individuals at risk (combat veterans, victims of volcanic eruptions or criminal violence) have yielded prevalence rates of 3% to 58%, suggesting these results are within range, given the disaster.

The results of this study are consistent with the prevalence differences of PTSD, as reported by the DSM-III-R, between males and females. Of the 14 respondents who endorsed symptoms of PTSD, 3 were males and 11 were females. In addition, on average, results suggested a trend for females to experience a higher degree of PTSD symptomatology than males.

Although it appears that many more females than males were suffering symptomatology consistent with a diagnosis of PTSD, an examination of gender differences in response to the Symptom Checklist 90-Revised (SCL-90R) (Derogatis, 1992) revealed no significant differences between genders on any of the subscales. This may be due to the qualitative differences in the criteria needed to reach significance on either the PTSD questionnaire or the SCL-90R. Although there appears to be some item overlap in the questionnaires, many items are quite different.

An analysis of the SCL-90R responses for only the individuals who fulfilled the diagnostic criteria for PTSD revealed a much different picture. To clarify, those who reached diagnostic criteria for PTSD were treated as one group and differences in the degree of PTSD symptomatology these individuals experienced was not considered. The only subscales of the SCL-90R which did not reach statistical significance, when comparing levels of symptomatology consistent with a diagnosis of PTSD versus levels inconsistent with a diagnosis of PTSD, were Somatization, Paranoid Ideation, and Phobic Anxiety. The scales which did reach significance were: Obsessive-Compulsive; Interpersonal Sensitivity; Depression; Anxiety; Hostility; Psychoticism; and the Global Severity Index, which measures symptoms of overall psychological distress. These results clearly indicate that those individuals who reached criteria consistent with a diagnosis of PTSD were also experiencing a diverse range of psychological symptomatology which was not encompassed within the narrow confines of a "PTSD diagnosis".

A comparison between the level of PTSD symptomatology and symptom endorsement as measured by the SCL-90R showed that individuals experiencing a greater degree of PTSD symptoms were also more likely to be experiencing a higher degree of general psychological distress. The difference between this analysis and the previously described one is

that individuals who reached PTSD diagnostic criteria were not treated as a homogeneous group; each individual's level or degree of PTSD symptomatology was examined. For those subjects who endorsed greater levels of PTSD symptomatology, there were significant correlations with higher degrees of symptomatology on a subset of the SCL-90R subscales.

Furthermore, for individuals who endorsed greater levels of PTSD symptomatology, there were gender differences in the types of symptoms reported. Males who reported greater levels of PTSD symptomatology also reported higher levels of symptomatology on the Interpersonal Sensitivity, Depression, and Paranoid Ideation subscales. The Global Severity Index also showed a significant relationship with PTSD symptoms. The greater degree of PTSD symptoms reported by women the greater levels of symptomatology on the Obsessive-Compulsive, Interpersonal Sensitivity, Depression, Anxiety, and Psychoticism subscales of the SCL-90R. A significant relationship between PTSD symptoms and the Global Severity Index was also shown. It should be noted that while men demonstrated a relationship between PTSD symptomatology and the Paranoid Ideation subscale of the SCL-90R, women did not. Additionally, women showed a relationship between PTSD symptomatology and the Obsessive-Compulsive, Anxiety, and Psychoticism subscales of the SCL-90R and men did not.

(Refer to Table 3 for specifics.) Just as there are gender differences in PTSD prevalence, there appear to be

relationship differences in types of psychological symptomatology, for those with increased PTSD symptoms, as evidenced by the SCL-90R. This supports the hypothesis that men and women would display different types of symptomatology, as evidenced by SCL-90R subscales.

The results of this study indicate that women who survived Hurricane Andrew showed not only a higher prevalence of PTSD, but also reported a greater level of diverse types of general psychological symptomatology. However, this result should be interpreted with caution as the low number of male respondents may have influenced statistical significance.

Survivors of natural disasters frequently show symptoms which resemble the post-traumatic stress symptoms experienced by combat soldiers. However, conclusions about the nature and prevalence of the psychological consequences of natural disasters are varied and contradictory (McFarlane, 1986). Responses to natural disasters have been seen to cover a wide range of types of symptoms, including phobias, anxieties, fears, depression, loss of affect, grief reactions, physical symptoms, and interpersonal problems (Green, 1991). The findings in this study support the presence of diverse symptomatology for those who also report PTSD symptoms. Survivors of Hurricane Andrew who were experiencing greater PTSD symptomatology reported increased levels of symptomatology in the realms of obsessive-

compulsive thoughts, interpersonal sensitivity, depression, anxiety, paranoid ideation, psychoticism, and general psychological distress.

Shore, Vollmer, and Tatum (1989) have criticized the assumption that survivors of natural disasters reexperience their trauma in the same manner as combat veterans. Veterans tend to reexperience the trauma with symptoms of denial and withdrawal, whereas natural disaster victims tend to reexperience with symptoms of anxiety and depression. Since the DSM-III-R diagnostic criteria for PTSD was designed with combat veterans in mind, PTSD in survivors of natural disasters may be underrepresented and/or qualitatively different. Focusing solely on PTSD as a diagnosis in disaster victims is likely to provide a low yield and miss important mental health problems such as depression and anxiety (Green, 1991). This statement is corroborated by the results of this study. A significant number of respondents, particularly women, who were experiencing PTSD symptoms also showed increased levels of depression and anxiety, among others. This supports the tenet of many disaster researchers who believe the criteria for a PTSD diagnosis should either be expanded, or a disaster syndrome stress reaction category should be created. Of interest is, that while this research project was in progress, the DSM-IV was published (American Psychiatric Association, 1994). The diagnostic criteria

were not expanded to include the additional symptomatology often experienced by survivors of natural disasters, nor was a separate disaster syndrome created. In fact, the only significant change in the PTSD diagnostic criteria was the elimination of the statement categorizing the traumatic event as "outside the range of usual human experience" (American Psychiatric Association, 1987).

As stated by Krystal (1978), "...it was not the intensity of the (traumatic) experience but the meaning for the individual that posed the challenge and generated the affective response that caused the ultimate post-traumatic adaptation". When the relationship between the perceived degree of loss and symptomatology levels on the SCL-90R and/or the PTSD questionnaire was examined, the results of this study did not support Krystal's statement. Although significance may have been affected by the small subject pool, the findings indicated no significant difference in meanings for survivors across PTSD symptomatology measures or scales on the SCL-90R. However, additional comments added by participants in the study indicated that many people were extremely upset about their losses. Many people stated that damage to or loss of cars, homes, and landscaping was much less important and less painful than the loss of pets and irreplaceable family pictures and heirlooms. Individual comments also revealed that many respondents were distressed about losses which were not

directly addressed in the questionnaire, such as a loss of time (teachers lost many days off due to the delayed start of the school year), and a loss of feelings of personal safety when threatening (non-hurricane) thunderheads approached.

McFarlane (1986) stated that the risk of developing a psychiatric disorder following a disaster is influenced by the extent of personal and property losses. In this study, it was hypothesized that those who suffered greater financial losses would have greater degrees of psychological symptomatology. This hypothesis was not supported. No statistical significance was reached on an examination of the relationship between the amount of dollar loss and symptomatology as evidenced by the SCL-90R.

As previously stated, survivors of natural disasters often experience increased levels of anxiety and depression which have been encompassed by some researchers under the term "disaster syndrome" (Green, 1991; van der Kolk, 1987). Furthermore, McFarlane (1986) stated that the development of psychiatric disorders following a disaster may be influenced by the extent of personal and property losses. This study specifically examined the relationship between "disaster syndrome", defined as a score of 6 on the PTSD questionnaire and clinically significant levels of symptomatology on the Depression and Anxiety subscales of the SCL-90R, and losses suffered by the individual subjects. It was hypothesized

that individuals who experienced greater losses, either dollar amounts, or irreplaceable items of personal salience, would experience greater levels of disaster syndrome. However, analyses revealed no relationships between disaster syndrome and either type of loss. Considering that the previously described relationship between diagnostic levels of PTSD and losses incurred did not reach statistical significance, it is not unusual that this analysis, which included two more necessary criteria, did not reach significance either.

Shore, Tatum, and Vollmer (1986) propose that there are specific stages of recovery which disaster survivors undergo. They have been labelled the heroic, honeymoon, disillusionment, and reconstruction phases. The reconstruction phase generally lasts for several years following the disaster, and it is in this stage that post-traumatic stress disorder may develop (Carson & Butcher, 1992). This study hypothesized that the majority of survivors with high levels of symptomatology would be in the reconstruction phase of recovery. Due to the timing of the distribution of the questionnaires, only the disillusionment and reconstruction phases could be examined. Since this study was most concerned with PTSD and disaster syndrome symptomatology, the reconstruction phase was targeted. Of the 21 subjects who did not have PTSD (9 did not answer this question), 18 of them were in the reconstruction phase of

recovery. This may be explained simply by the amount of time that had elapsed since the hurricane. Of the 14 subjects who were diagnosed as suffering from PTSD, all of them were in the reconstruction phase of recovery. Although these results were not greater than expected by chance, it is interesting to note that all of the respondents with PTSD appeared to be in the phase of recovery where this disorder is believed to develop.

For this study, the survivors' degree of exposure to the trauma was measured by responding to a question as to whether or not they thought they were going to die. It was hypothesized that survivors who thought they were going to die would have a higher degree of symptomatology. The results were mixed. Regardless of symptomatology, 12 of the 44 subjects thought they were going to die. There was no significant relationship between the degree of exposure and a presence or absence of symptomatology consistent with a diagnosis for PTSD. However, those survivors who did think they were going to die showed a significant relationship between fears of death and symptom levels on the Anxiety and Interpersonal Sensitivity subscales of the SCL-90R. This result partially supports the tenet that survivors of natural disasters experience increased levels of depression and anxiety.

In conclusion, the work in disaster research suggests that natural disasters can, indeed, lead to long-term

psychological distress. It appears that it could be beneficial to mental health workers to be aware of the potential differences in symptomatology between survivors of natural disasters and those of other traumas, even when both have been diagnosed with PTSD. This study supports the potential value of expanding the PTSD criteria for survivors of natural disasters. However, due to the limitations of this study, primarily a small subject pool, these results should be interpreted with caution.

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TABLE 1
PTSD DIAGNOSIS AND GENDER DISTRIBUTION

Count	No PTSD	PTSD	Row
Total			
Males	12	3	15 34.1
Females	18	11	29 65.9
Column	30	14	44
Total	68.2	31.8	100.0

TABLE 2
TOTAL PTSD SYMPTOMS AND GENDER DISTRIBUTION

Group	Number of Cases	Mean	Standard Deviation	Standard Error
Males	15	6.47	3.85	1.00
Females	29	9.14	6.49	1.21

TABLE 3

SCL-90R SCORES AND GENDER

<u>Scale</u>	<u>Number of Cases</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>
Somatization				
Males	15	43.73	11.19	2.89
Females	29	49.38	11.38	2.11
Obsessive-Compulsive				
Males	15	51.13	12.18	3.15
Females	29	52.97	12.97	2.41
Interpersonal Sensitivity				
Males	15	49.93	10.05	2.60
Females	29	52.90	11.00	2.04
Depression				
Males	15	49.94	13.22	3.41
Females	29	52.58	12.01	2.23
Anxiety				
Males	15	47.80	10.73	2.77
Females	29	51.07	13.36	2.48
Hostility				
Males	15	51.20	9.96	2.57
Females	29	50.14	11.07	2.06
Phobic Anxiety				
Males	15	46.00	10.56	2.73
Females	29	49.45	10.34	1.92
Paranoid Ideation				
Males	15	44.47	10.79	2.79
Females	29	46.55	11.89	2.21
Psychoticism				
Males	15	48.93	10.13	2.62
Females	29	51.10	11.37	2.11
Global Severity Index				
Males	15	50.00	9.51	2.46
Females	29	53.10	11.11	2.06
Significance	* LE .05	** LE .01		

TABLE 4

PTSD AND SCL-90R SCORES

<u>Scale</u>	<u>Number of Cases</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>
Somatization *				
No PTSD	30	45.20	11.56	2.11
PTSD	14	52.29	10.18	2.72
Obsessive-Compulsive **				
No PTSD	30	48.20	12.54	2.29
PTSD	14	61.21	7.05	1.89
Interpersonal Sensitivity **				
No PTSD	30	49.07	9.98	1.82
PTSD	14	57.93	9.79	2.62
Depression **				
No PTSD	30	47.80	12.21	2.23
PTSD	14	60.00	7.90	2.11
Anxiety **				
No PTSD	30	46.60	12.33	2.25
PTSD	14	57.14	9.79	2.62
Hostility *				
No PTSD	30	48.27	10.21	1.86
PTSD	14	55.29	10.15	2.71
Phobic Anxiety				
No PTSD	30	46.70	10.08	1.84
PTSD	14	51.64	10.71	2.86
Paranoid Ideation				
No PTSD	30	43.87	9.97	1.82
PTSD	14	50.07	13.53	3.62
Psychoticism **				
No PTSD	30	47.13	9.83	1.79
PTSD	14	57.29	10.08	2.70
Global Severity Index **				
No PTSD	30	48.27	9.72	1.77
PTSD	14	60.14	7.52	2.01
Significance		* LE .05	** LE .01	

TABLE 5
PTSD SYMPTOMS AND SCL-90R SCORES BY GENDER

<u>SCL-90R Subscale</u>	<u>Total of PTSD Symptoms</u>	
	<u>Males</u>	<u>Females</u>
Somatization	.35	.35
Obsessive-Compulsive	.46	.60**
Interpersonal Sensitivity	.52*	.54**
Depression	.52*	.60**
Anxiety	.21	.66**
Hostility	.42	.31
Phobic Anxiety	.44	.25
Paranoid Ideation	.63*	.34
Psychoticism	.48	.45*
Global Severity Index	.55*	.67**
Pearson r Significance:	* LE .05	** LE .01

TABLE 6

CORRELATION BETWEEN DOLLAR LOSS AND DEGREE OF LOSS

	Degree of Loss	Dollar Loss
Degree of Loss	1.00	-.03
Dollar Loss	-.03	1.00
Pearson r Significance:	* LE .05	**LE .01

TABLE 7

DEGREE OF LOSS AND PTSD DIAGNOSIS

Group	Number of Cases	Mean	Standard Deviation	Standard Error
No PTSD	30	28	15.77	2.88
PTSD	14	34	12.66	3.38

TABLE 8

DOLLAR LOSS (IN THOUSANDS) AND PTSD DIAGNOSIS

Group	Number of Cases	Mean	Standard Deviation	Standard Error
No PTSD	30	68.67	188.16	34.35
PTSD	14	48.93	51.49	13.76

TABLE 9
SCL-90R AND LOSSES

SCL-90R Scale	Degree of Loss	Dollar Loss
Somatization	.18	-.00
Obsessive-Compulsive	.22	.09
Interpersonal Sensitivity	.20	-.08
Depression	-.19	-.05
Anxiety	.07	.04
Hostility	.27	.08
Phobic Anxiety	-.02	.18
Paranoid Ideation	.10	.08
Psychoticism	-.01	.18
Global Severity Index	.10	.01
Pearson r Significance	* LE .05	** LE .01

TABLE 10

DISASTER SYNDROME AND DOLLAR LOSS (IN THOUSANDS)

Group	Number of Cases	Mean	Standard Deviation	Standard Error
No Disaster Syndrome	16	109.36	250.31	62.58
Disaster Syndrome	4	39.25	41.26	20.63

TABLE 11

DISASTER SYNDROME AND DEGREE OF LOSS

Group	Number of Cases	Mean	Standard Deviation	Standard Error
No Disaster Syndrome	16	28.38	18.57	4.64
Disaster Syndrome	4	25.50	10.66	5.33

TABLE 12

RECOVERY PHASE AND PTSD DIAGNOSIS

	Reconstruction Phase	Non Reconstruction Phase	Row Total
No PTSD	18	3	21 60.0
PTSD	14	0	14 40.0
Column Total	32 91.4	3 8.6	35 100.0

TABLE 13

PTSD AND FEARS OF DEATH

Group	Fear of Death	No Fear of Death	Row Total
No PTSD	7	22	29 67.4
PTSD	5	9	14 32.6
Column Total	12 27.9	31 72.1	43 100.0

TABLE 14
FEARS OF DEATH AND SCL-90R SCORES

<u>Scale</u>	<u>Number of Cases</u>	<u>Mean</u>	<u>Standard Deviation</u>	<u>Standard Error</u>
Somatization				
Fear	12	47.83	14.47	4.18
No Fear	31	47.29	10.64	1.91
Obsessive-Compulsive				
Fear	12	53.17	15.31	4.42
No Fear	31	51.97	11.87	2.13
Interpersonal Sensitivity *				
Fear	12	57.83	12.17	3.51
No Fear	31	49.65	9.43	1.69
Depression				
Fear	12	53.00	14.17	4.09
No Fear	31	50.87	11.86	2.13
Anxiety*				
Fear	12	56.08	11.34	3.27
No Fear	31	47.58	12.48	2.24
Hostility				
Fear	12	55.17	10.55	3.05
No Fear	31	49.19	10.09	1.81
Phobic Anxiety				
Fear	12	48.75	11.33	3.27
No Fear	31	48.35	10.31	1.85
Paranoid Ideation				
Fear	12	47.42	14.76	4.26
No Fear	31	45.58	10.14	1.82
Psychoticism				
Fear	12	50.08	13.65	3.94
No Fear	31	50.10	9.86	1.77
Global Severity Index				
Fear	12	54.17	13.05	3.77
No Fear	31	51.16	9.77	1.76
Significance	* LE .05	**LE .01		

CORAL GABLES SENIOR HIGH SCHOOL
DADE COUNTY PUBLIC SCHOOL

450 Bird Road
Coral Gables, Florida 33146
(305) 443-4871

RALPH V. MOORE, JR.
PRINCIPAL

OCTAVIO J. VISIEDO
SUPERINTENDENT OF SCHOOLS

March 8, 1993

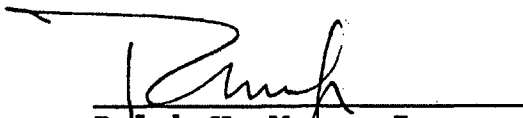
Ms. Sandra MacIntosh
34545 Terrace Drive
Missoula, MT 59803

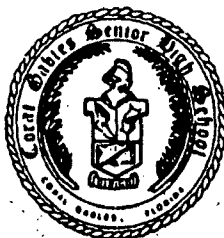
Dear Sandra MacIntosh,

As requested I am sending you this letter as permission to distribute questionnaires to teachers in our school. I understand that this will be done on a volunteer basis.

Best of luck with your project.

Sincerely,


Ralph V. Moore Jr.



PONCE DE LEON MIDDLE SCHOOL

5801 AUGUSTO STREET
CORAL GABLES, FLORIDA 33146
(305) 661-1611

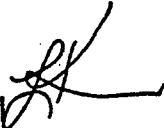
RAYMOND L. FONTANA
PRINCIPAL

OCTAVIO J. VISIEDO
SUPERINTENDENT
DADE COUNTY PUBLIC SCHOOLS

April , 1, 1993

MEMORANDUM

TO: Sandra MacIntosh

FROM: Lois Kahn, Assistant Principal 
PONCE DE LEON MIDDLE SCHOOL

SUBJECT: RESEARCH PROJECT

YOU ARE HEREBY GRANTED PERMISSION TO SUBMIT QUESTIONNAIRES TO
PONCE DE LEON MIDDLE SCHOOL TEACHERS.

PLEASE FEEL FREE TO CONTACT ME IF NECESSARY.



INSTRUCTIONS:

Below is a list of problems people sometimes have. Please read each one carefully, and circle the number to the right that best describes HOW MUCH THAT PROBLEM HAS DISTRESSED OR BOTHERED YOU DURING THE PAST 7 DAYS INCLUDING TODAY. Circle only one number for each problem and do not skip any items. If you change your mind, erase your first mark carefully. Read the example below before beginning, and if you have any questions please ask about them.

SEX

MALE

FEMALE

NAME: _____

LOCATION: _____

EDUCATION: _____

MARITAL STATUS: MAR. ___ SEP. ___ DIV. ___ WID. ___ SING. ___

DATE		
MO	DAY	YEAR

ID. NUMBER

AGE

EXAMPLE

HOW MUCH WERE YOU DISTRESSED BY:

1. Bodyaches

NOT AT ALL
 A LITTLE BIT
 MODERATELY
 QUITE A BIT
 EXTREMELY

0 1 2 **3** 4

VISIT NUMBER: _____

HOW MUCH WERE YOU DISTRESSED BY:

NOT AT ALL
 A LITTLE BIT
 MODERATELY
 QUITE A BIT
 EXTREMELY

1. Headaches	1	0	1	2	3	4
2. Nervousness or shakiness inside	2	0	1	2	3	4
3. Repeated unpleasant thoughts that won't leave your mind	3	0	1	2	3	4
4. Faintness or dizziness	4	0	1	2	3	4
5. Loss of sexual interest or pleasure	5	0	1	2	3	4
6. Feeling critical of others	6	0	1	2	3	4
7. The idea that someone else can control your thoughts	7	0	1	2	3	4
8. Feeling others are to blame for most of your troubles	8	0	1	2	3	4
9. Trouble remembering things	9	0	1	2	3	4
10. Worried about sloppiness or carelessness	10	0	1	2	3	4
11. Feeling easily annoyed or irritated	11	0	1	2	3	4
12. Pains in heart or chest	12	0	1	2	3	4
13. Feeling afraid in open spaces or on the streets	13	0	1	2	3	4
14. Feeling low in energy or slowed down	14	0	1	2	3	4
15. Thoughts of ending your life	15	0	1	2	3	4
16. Hearing voices that other people do not hear	16	0	1	2	3	4
17. Trembling	17	0	1	2	3	4
18. Feeling that most people cannot be trusted	18	0	1	2	3	4
19. Poor appetite	19	0	1	2	3	4
20. Crying easily	20	0	1	2	3	4
21. Feeling shy or uneasy with the opposite sex	21	0	1	2	3	4
22. Feelings of being trapped or caught	22	0	1	2	3	4
23. Suddenly scared for no reason	23	0	1	2	3	4
24. Temper outbursts that you could not control	24	0	1	2	3	4
25. Feeling afraid to go out of your house alone	25	0	1	2	3	4
26. Blaming yourself for things	26	0	1	2	3	4
27. Pains in lower back	27	0	1	2	3	4
28. Feeling blocked in getting things done	28	0	1	2	3	4
29. Feeling lonely	29	0	1	2	3	4
30. Feeling blue	30	0	1	2	3	4
31. Worrying too much about things	31	0	1	2	3	4
32. Feeling no interest in things	32	0	1	2	3	4
33. Feeling fearful	33	0	1	2	3	4
34. Your feelings being easily hurt	34	0	1	2	3	4
35. Other people being aware of your private thoughts	35	0	1	2	3	4

HOW MUCH WERE YOU DISTRESSED BY:

		NOT AT ALL	A LITTLE BIT	MODERATELY	QUITE A BIT	EXTREMELY	
36.	Feeling others do not understand you or are unsympathetic	36	0	1	2	3	4
37.	Feeling that people are unfriendly or dislike you	37	0	1	2	3	4
38.	Having to do things very slowly to insure correctness	38	0	1	2	3	4
39.	Heart pounding or racing	39	0	1	2	3	4
40.	Nausea or upset stomach	40	0	1	2	3	4
41.	Feeling inferior to others	41	0	1	2	3	4
42.	Soreness of your muscles	42	0	1	2	3	4
43.	Feeling that you are watched or talked about by others	43	0	1	2	3	4
44.	Trouble falling asleep	44	0	1	2	3	4
45.	Having to check and double-check what you do	45	0	1	2	3	4
46.	Difficulty making decisions	46	0	1	2	3	4
47.	Feeling afraid to travel on buses, subways, or trains	47	0	1	2	3	4
48.	Trouble getting your breath	48	0	1	2	3	4
49.	Hot or cold spells	49	0	1	2	3	4
50.	Having to avoid certain things, places, or activities because they frighten you	50	0	1	2	3	4
51.	Your mind going blank	51	0	1	2	3	4
52.	Numbness or tingling in parts of your body	52	0	1	2	3	4
53.	A lump in your throat	53	0	1	2	3	4
54.	Feeling hopeless about the future	54	0	1	2	3	4
55.	Trouble concentrating	55	0	1	2	3	4
56.	Feeling weak in parts of your body	56	0	1	2	3	4
57.	Feeling tense or keyed up	57	0	1	2	3	4
58.	Heavy feelings in your arms or legs	58	0	1	2	3	4
59.	Thoughts of death or dying	59	0	1	2	3	4
60.	Overeating	60	0	1	2	3	4
61.	Feeling uneasy when people are watching or talking about you	61	0	1	2	3	4
62.	Having thoughts that are not your own	62	0	1	2	3	4
63.	Having urges to beat, injure, or harm someone	63	0	1	2	3	4
64.	Awakening in the early morning	64	0	1	2	3	4
65.	Having to repeat the same actions such as touching, counting, or washing	65	0	1	2	3	4
66.	Sleep that is restless or disturbed	66	0	1	2	3	4
67.	Having urges to break or smash things	67	0	1	2	3	4
68.	Having ideas or beliefs that others do not share	68	0	1	2	3	4
69.	Feeling very self-conscious with others	69	0	1	2	3	4
70.	Feeling uneasy in crowds, such as shopping or at a movie	70	0	1	2	3	4
71.	Feeling everything is an effort	71	0	1	2	3	4
72.	Spells of terror or panic	72	0	1	2	3	4
73.	Feeling uncomfortable about eating or drinking in public	73	0	1	2	3	4
74.	Getting into frequent arguments	74	0	1	2	3	4
75.	Feeling nervous when you are left alone	75	0	1	2	3	4
76.	Others not giving you proper credit for your achievements	76	0	1	2	3	4
77.	Feeling lonely even when you are with people	77	0	1	2	3	4
78.	Feeling so restless you couldn't sit still	78	0	1	2	3	4
79.	Feelings of worthlessness	79	0	1	2	3	4
80.	The feeling that something bad is going to happen to you	80	0	1	2	3	4
81.	Shouting or throwing things	81	0	1	2	3	4
82.	Feeling afraid you will faint in public	82	0	1	2	3	4
83.	Feeling that people will take advantage of you if you let them	83	0	1	2	3	4
84.	Having thoughts about sex that bother you a lot	84	0	1	2	3	4
85.	The idea that you should be punished for your sins	85	0	1	2	3	4
86.	Thoughts and images of a frightening nature	86	0	1	2	3	4
87.	The idea that something serious is wrong with your body	87	0	1	2	3	4
88.	Never feeling close to another person	88	0	1	2	3	4
89.	Feelings of guilt	89	0	1	2	3	4
90.	The idea that something is wrong with your mind	90	0	1	2	3	4

Appendix D

THE LIFE EXPERIENCES SURVEY

listed below are a number of events which sometimes bring about change in the lives of those who experience them and which necessitate social adjustment. Please check those events which you have experienced in the recent past and indicate the time period during which you have experienced each event. Be sure that all check marks are directly across from the items they correspond to.

Also, for each item checked below, please indicate the extent to which you viewed the event as having either a positive or negative impact on your life at the time the event occurred. That is, indicate the type and extent of impact that the event had. A rating of -3 would indicate an extremely negative impact. A rating of 0 suggests no impact either positive or negative. A rating of +3 would indicate an extremely positive impact.

Please circle the items which were/are a direct result of Hurricane Andrew.

	0		Extremely Negative	Moderately Negative	Somewhat Negative	No Impact	Slightly Positive	Moderately Positive	Extremely Positive
	to 6 mo	7 mo to 1 yr							
Marriage.....			-3	-2	-1	0	+1	+2	+3
Detention in jail or comparable institution.....			-3	-2	-1	0	+1	+2	+3
Death of spouse.....			-3	-2	-1	0	+1	+2	+3
Major change in sleeping habits (much more or much less sleep).....			-3	-2	-1	0	+1	+2	+3
Death of close family member:									
a. mother.....			-3	-2	-1	0	+1	+2	+3
b. father.....			-3	-2	-1	0	+1	+2	+3
c. brother.....			-3	-2	-1	0	+1	+2	+3
d. sister.....			-3	-2	-1	0	+1	+2	+3
e. grandmother.....			-3	-2	-1	0	+1	+2	+3
f. grandfather.....			-3	-2	-1	0	+1	+2	+3
g. other (specify).....			-3	-2	-1	0	+1	+2	+3
Major change in eating habits (much more or much less food intake).....			-3	-2	-1	0	+1	+2	+3
Foreclosure on mortgage or loan.....			-3	-2	-1	0	+1	+2	+3
Death of close friend.....			-3	-2	-1	0	+1	+2	+3
Outstanding personal achievement.....			-3	-2	-1	0	+1	+2	+3
Minor law violations (traffic tickets, disturbing the peace, etc.).....			-3	-2	-1	0	+1	+2	+3
Male: Wife/girlfriend's pregnancy.....			-3	-2	-1	0	+1	+2	+3
Female: Pregnancy.....			-3	-2	-1	0	+1	+2	+3
Changed work situation (different work responsibility, major change in working conditions, working hours, etc.).....			-3	-2	-1	0	+1	+2	+3
New job.....			-3	-2	-1	0	+1	+2	+3
Serious illness or injury of close family member:									
a. father.....			-3	-2	-1	0	+1	+2	+3
b. mother.....			-3	-2	-1	0	+1	+2	+3
c. sister.....			-3	-2	-1	0	+1	+2	+3
d. brother.....			-3	-2	-1	0	+1	+2	+3
e. grandfather.....			-3	-2	-1	0	+1	+2	+3
f. grandmother.....			-3	-2	-1	0	+1	+2	+3
g. spouse.....			-3	-2	-1	0	+1	+2	+3
h. other (specify).....			-3	-2	-1	0	+1	+2	+3
Sexual difficulties.....			-3	-2	-1	0	+1	+2	+3
Trouble with employer (in danger of losing job, being suspended, demoted, etc.).....			-3	-2	-1	0	+1	+2	+3
Trouble with in-laws.....			-3	-2	-1	0	+1	+2	+3
Major change in financial status (a lot better off or a lot worse off).....			-3	-2	-1	0	+1	+2	+3

- 2 -

	0	7	Extremely Negative	Moderately Negative	Somewhat Negative	No Impact	Slightly Positive	Moderately Positive	Extremely Positive
	to 6 mo	to 1 yr							
20. Major change in closeness of family members (increased or decreased closeness).....			-3	-2	-1	0	+1	+2	+3
21. Gaining a new family member (through birth, adoption, family member moving in, etc.).....			-3	-2	-1	0	+1	+2	+3
22. Change of residence.....			-3	-2	-1	0	+1	+2	+3
23. Marital separation from mate (due to conflict).....			-3	-2	-1	0	+1	+2	+3
24. Major change in church activities (increased or decreased attendance).....			-3	-2	-1	0	+1	+2	+3
25. Marital reconciliation with mate.....			-3	-2	-1	0	+1	+2	+3
26. Major change in number of arguments with spouse a lot more or a lot less arguments).....			-3	-2	-1	0	+1	+2	+3
27. <u>Married male</u> : Change in wife's work outside the home (beginning work, ceasing work, changing to a new job, etc.).....			-3	-2	-1	0	+1	+2	+3
28. <u>Married female</u> : Change in husband's work (loss of job, beginning new job, retirement, etc.).....			-3	-2	-1	0	+1	+2	+3
29. Major change in usual type and/or amount of recreation.....			-3	-2	-1	0	+1	+2	+3
30. Borrowing more than \$10,000 (buying home, business, etc.).....			-3	-2	-1	0	+1	+2	+3
31. Borrowing less than \$10,000 (buying car, TV, getting school loan, etc.).....			-3	-2	-1	0	+1	+2	+3
32. Being fired from job.....			-3	-2	-1	0	+1	+2	+3
33. <u>Male</u> : Wife/girlfriend having abortion.....			-3	-2	-1	0	+1	+2	+3
34. <u>Female</u> : Having abortion.....			-3	-2	-1	0	+1	+2	+3
35. Major personal illness or injury.....			-3	-2	-1	0	+1	+2	+3
36. Major change in social activities, e.g., parties, movies, visiting (increased or decreased participation).....			-3	-2	-1	0	+1	+2	+3
37. Major change in living conditions of family (building new home, remodeling, deterioration of home, neighborhood, etc.).....			-3	-2	-1	0	+1	+2	+3
38. Divorce.....			-3	-2	-1	0	+1	+2	+3
39. Serious injury or illness of close friend....			-3	-2	-1	0	+1	+2	+3
40. Retirement from work.....			-3	-2	-1	0	+1	+2	+3
41. Son or daughter leaving home (due to marriage, college, etc.).....			-3	-2	-1	0	+1	+2	+3
42. Ending of formal schooling.....			-3	-2	-1	0	+1	+2	+3
43. Separation from spouse (due to work, travel, etc.).....			-3	-2	-1	0	+1	+2	+3
44. Engagement.....			-3	-2	-1	0	+1	+2	+3
45. Breaking up with boyfriend/girlfriend.....			-3	-2	-1	0	+1	+2	+3
46. Leaving home for the first time.....			-3	-2	-1	0	+1	+2	+3
47. Reconciliation with boyfriend/girlfriend.....			-3	-2	-1	0	+1	+2	+3
<u>Other recent experiences which have had an impact on your life. List and rate.</u>									
48. _____.....			-3	-2	-1	0	+1	+2	+3
49. _____.....			-3	-2	-1	0	+1	+2	+3
50. _____.....			-3	-2	-1	0	+1	+2	+3

Appendix E

QUESTIONNAIRE

Please read the following statements and circle the frequency that most applies to you in your life currently.

- | | | | |
|---|-------|-----------|-------|
| 1. I have recurrent upsetting memories of the hurricane. | never | sometimes | often |
| 2. I have recurrent distressing dreams of the hurricane. | never | sometimes | often |
| 3. I have sudden feelings of reliving the hurricane. | never | sometimes | often |
| 4. I feel distressed when I am exposed to experiences that resemble an aspect of the hurricane. | never | sometimes | often |
| 5. I make an effort to avoid thoughts or feelings associated with the hurricane. | never | sometimes | often |
| 6. I make an effort to avoid activities, situations, or play that arouse recollections of the hurricane. | never | sometimes | often |
| 7. I have trouble remembering the experiences I had during the hurricane. | never | sometimes | often |
| 8. I am significantly less interested in important activities that I used to enjoy. | never | sometimes | often |
| 9. I often feel like other people don't understand me. | never | sometimes | often |
| 10. I have a limited range of feeling my emotions (for example I am unable to have feelings of deep love or intense anger). | never | sometimes | often |
| 11. I feel like I don't have much of a future (for example marriage, grandchildren, retirement or old age). | never | sometimes | often |
| 12. I have difficulty falling or staying asleep. | never | sometimes | often |
| 13. I am irritable or have outbursts of anger. | never | sometimes | often |

Appendix F

LOSS QUESTIONNAIRE

Many people suffered personal and property losses due to Hurricane Andrew. PLEASE RESPOND TO THE ITEMS WHICH APPLY TO YOU. Please circle the degree of importance these losses held for you.

1. One of my loved ones was hurt due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
2. One of my loved ones was killed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
3. My home was damaged due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
4. My home was destroyed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
5. My property (trees, landscaping) was damaged or destroyed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
6. My business was damaged due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
7. My business was destroyed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
8. My car (or method of transportation) was damaged due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
9. My car (or method of transportation) was destroyed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
10. My boat was damaged or destroyed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7
11. My pet was lost, injured or killed due to the hurricane.

No Importance			Neutral			Tremendous Importance
1	2	3	4	5	6	7

12. My furniture was damaged or destroyed.
 No Importance Neutral Tremendous Importance
 1 2 3 4 5 6 7
13. Irreplaceable personal items such as pictures or family heirlooms were damaged or destroyed due to the hurricane.
 No Importance Neutral Tremendous Importance
 1 2 3 4 5 6 7
14. The amount of free time I have has been effected by the hurricane.
 No Importance Neutral Tremendous Importance
 1 2 3 4 5 6 7
15. Have you received aid that was promised to you?
 Yes No
16. Are you still in contact with friends and community members you were previously in contact with?
 Yes No
17. Are you disappointed or bitter about a lack of support or delays in promised support?
 Yes No
18. Have you rebuilt, or are you rebuilding?
 Yes No
19. Total dollar value of losses sustained _____
20. What do you think is the most profound effect this experience has had on you?

THANK YOU