TRANSITION INTO DISASTER WORKER STRESS AUDITING: ORLANDO MOVES TO THE FUTURE

STRATEGIC MANAGEMENT OF CHANGE

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ABSTRACT

This research project analyzed the factors that make up a disaster stress audit. The problem was that the Orlando Fire Department does not provide for assessing the stress levels of emergency workers during extended disaster operations. The purpose of the research project was to develop a disaster stress audit guideline to monitor the signs, symptoms, and behaviors exhibited by emergency workers effected by the stress of disaster operations.

This research employed action research (a) to determine what items should be included in a stress audit, (b) what training should be provided to potential sector officers that will use the stress audit, (c) what is the current mind set among emergency workers relating to their susceptibility to stress during disaster operations, (d) what criteria should be used for not allowing a emergency worker to return to disaster operations, (e) what type of relationship should be initiated with the mental health community for support prior to a disaster striking a community, and (f) is there an acceptance of psychological duty related injury with the more commonly known and accepted forms of duty related injury?

The principle procedure employed was review of published materials and a survey. Data were compiled in graphic form to facilitate a comparison of published materials and contemporary fire department applications of appraising stress in emergency workers.

The major findings of this research were that few fire departments currently incorporate a stress audit into their disaster operations. Principle among those factors was that only 2.47% of surveyed departments even have a formal process in place for evaluating the stress in their emergency workers.

The recommendations resulting from this research include (a) train all Orlando Fire Department managers on the signs, symptoms, and behaviors associated with stress reactions in emergency workers, (b) update this form to keep it up with contemporary research on stress reactions, and (c) gain

a larger consensus from the mental health community insofar as what weight factors are appropriate for scoring the stress audit guideline.

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INTRODUCTION

The Orlando Fire Department has a history of over one hundred years of service excellence to the citizens of the City of Orlando. In the late 1950's, the fire department recognized the advantage of training its personnel in the dual role of both firefighter and emergency medical service provider. Starting with this cross training, the department has evolved from a single tasked fire fighting department into a premier, multiple rolled organization. Currently the Orlando Fire Department (OFD) provides fire fighting services, Advanced Life Support (ALS), Basic Life Support (BLS), a Dive Rescue team, a Hazardous Materials Response Team, a High Angle Rescue Team, Below Grade/Confined Space Rescue, and an Arson-Bomb Unit for the city. The fire department currently employs 325 firefighters.

Local government has a responsibility for the safety and security of its citizens. During and following an emergency or disaster, the continuity of government is key to assuring this safety and security. The City of Orlando has a commitment and obligation to its citizens, mandated by law, to ensure that mitigation efforts are enhanced; preparedness is encouraged; responsiveness is assured; and recovery is achieved, effectively and efficiently, before, during and after man-made and natural disasters. As part of the response effort to a disaster, emergency workers (i.e., fire fighters, police officers, private medical transporting agency personnel, nurses, doctors, etc.) are going to come into close, prolonged contact with the victims of the disaster. The effects of the devastation that a disaster brings to community, will in all likelihood, cause a emotional stress reaction in the victims of the disaster. Additionally, the emergency workers that are charged with the task of search and recovery, extrication, medical treatment and transportation to a receiving facility are going to become victims of this very same stress reaction. The Orlando Fire Department has been charged by the Mayor's office to fulfill the Emergency Management function for the City of Orlando. As part of this leadership role in emergency

management, the fire department must ensure the well-being of all emergency workers involved in disaster operations.

Currently the Orlando Fire Department does not have a worksheet available to the incident commander, that can he can provide to a rehabilitation sector officer, which would enable him to monitor the status of the mental health and stress levels in the emergency workers rotating through the rehabilitation sector during disaster operations. .

The purpose of the research project was to develop a Stress Audit Worksheet that the incident commander can provide to a rehabilitation sector officer to monitor the mental health and stress levels of emergency workers rotating through the rehabilitation sector during disaster operations. This stress audit would be used to determine if emergency workers, once evaluated, should return to disaster operations or be relieved from duty for treatment. Action research was employed to answer the following questions:

1. What items should be included in the stress audit?

2. What training should be provided to potential sector officer that will use the stress audit?

3. What is the current mind set among emergency worker relating to their suitability to stress during disaster operations?

4. What criteria should be used for not allowing a emergency worker to return to disaster operations?

5. What type of relationship should be initiated with the mental health community for support prior to a disaster striking a community?

6. Is there an acceptance of psychological duty related injury with the more commonly known and accepted forms of duty related injury?

BACKGROUND AND SIGNIFICANCE

In March 1999, Orlando Fire Chief Donald W. Harkins, Jr. impaneled a committee to review and update the City of Orlando's Comprehensive Emergency Management Plan (CEMP). The committee consisted of individuals from the fire department's Field Operations Bureau, Planning and Resources Section, and the Emergency Management/Special Operations Section. Over the course of several meetings, there was consensus that the current CEMP did nothing to address the potential mental health and stress related problems associated with working in prolonged disaster operations by emergency workers. The decision was made to move forward to develop a stress audit worksheet that the incident commander could provide to the rehabilitation sector officer to monitor the mental health and stress levels of emergency workers in the disaster setting.

The main problem with the current City of Orlando CEMP was that it did not contain a component relating to the well-being of emergency workers. The fire service in general has a long standing tradition of responding additional alarms into an incident until they smother the situation with manpower and the problem is mitigated. However, in the insistences of wide spread community devastation from a man-made or natural disaster, the incident may be protracted for days or weeks rather than several hours or a day at the most. Because of this, off-duty resources are going to be called back in to assist in the recovery effort. In all likelihood all shifts could potentially be held over until it has been deemed by the incident commander that all potential survivors of the disaster have been rescued and placed in temporary shelters. During this lengthy process, emergency workers are going to be exposed to disaster related stress. The stress will be driven by both the circumstances of the situation and the extremely close contact the emergency workers have with the victims of the community devastated by the event. Therefore it is imperative that the City of Orlando CEMP contain a component

that will ensure that the department's most valuable resource, its employees, receive continual, ongoing, and pervasive assessment of their physical and mental health status.

Insofar as the relationship to the Strategic Management of Change class was concerned, the most direct link of the subject matter is found in Module: 5, Personal Aspects of Change Management. A great deal of class time was spent on the virtues of our own reaction to change. In our lectures and class discussion we focused on what it takes to analyze the need for change; plan for the change; implement the change; and evaluate the effects of the change. The people that are drawn into the fire service as a career typically consider themselves impervious to the emotional effects of the injury, illness, and tragedy that they witness on a daily basis. Therefore, it is the responsibility of the future managers of the fire service to change the paradigm of the emergency worker that these tragic events do take a toll on their mental well-being and their ability to function in a productive manner to help others in need. As outlined in the module, managers must have a detailed understanding of the barriers to change and acceptance so that we can change and educate the emergency worker so that he can function, uninhibited by the effects of stress.

LITERATURE REVIEW

The delivery of mental health services following disasters differs from everyday service delivery, in part because the social context is different. Disasters produce a number of significant changes at the community, departmental, and individual levels. In addition to increasing the stress on individuals and families, disasters can affect the ability of emergency services to respond to the communities needs. Understanding disaster-related social processes can help emergency workers know what to expect during and after the emergency (Tierney, 1989).

There is growing concern in emergency services management administration that those personnel that deploy at scenes of disaster in the role of occupational duty are susceptible to physical and mental health consequences (Dunning, 1988).

Research based on retrospective accounts indicate that emergency workers participating in disaster operations experience various levels of physical and psychological discomfort (Keating, 1986). Emergency disaster conditions place extraordinary demands on emergency workers and their employing agencies to make optimum use of limited personnel and resources under urgent constraints of time (Dunning, 1988). The sudden, sharp increase in the number and kinds of demands for emergency services during a disaster can overwhelm the normal day to day operations of any organization. The general consensus of the emergency management community of the past typically took the approach that large scale disasters occurred only once in a lifetime so, since it is such a unique event, there was little to be gained by devoting sparse departmental resources to developing lengthy, detailed plans for those events.

Stress

Over the past 50 years, researchers from a number of disciplines have sought to identify the processes by which stressors act as precursors to physical and or mental illness. One common theme has emerged, that stress commonly occurs when demands are placed upon an individual that exceed his capability to respond. The degree to which an individual experiences stress is a function of the number, frequency, intensity, duration, and priority of the demands placed on the individual in relation to his various coping resources (Warheit, 1988).

Psychological reactions to stress, including fear, anxiety, or apprehension, is naturally present as a protective device in human beings in order that they may respond more effectively, i.e., with fight or flight, to life threatening occurrences. The fight or flight mechanisms go into effect as a consequence of the pituitary-adrenal axis response. Hanford (1988) writes that, "where stress is prolonged, psychological stress-related disorders have come to be recognized - for example, peptic ulcer, hypertension, and alteration of the immune system. This well established psychological knowledge has given rise to the recent emphasis on stress reduction in the workplace" (p. 186).

Emergency workers suffer from stress stemming from critical decisions, confrontation with human carnage, mass destruction to property or environment, distraught relatives or survivors, pressure from their own families who want them home, and sometimes interference from media and other onlookers. Butcher (1989) writes that, "… even the most experienced emergency worker may be unprepared for the grim reality of a mass causality situation" (p. 95). Emergency workers must often deal with situations which they are not trained or prepared for, and frequently they will be plagued by doubt about their decisions and ability to handle the job (Butcher , 1989).

Emergency workers frequently become secondary victims of emotional trauma because of their close proximity to those that suffered the most during the disaster. These workers are under pressure to know what to do with respect to life and death decisions and must dare to do it (Burkle, 1983). The nature of the work may make it impossible for them to share their experiences with their family. Daily emotional support should be available to allow expression of the common reactions among the disaster workers, so that inexperienced and experienced workers do not feel alone (Burkle, 1983). In this group setting, reassurance can be provided that revulsion, anger, and flashbacks of distressing scenes are normal reactions and are to be expected. According to Burkle (1983), "…it is important for

superior to stress that each worker know his or her own limitations and that it is healthy to recognize this" (p. 107).

Emergency workers should also be warned that shifts in their ego-organization are to be expected. In the short run, many workers can remain distanced and objective. But denial of the disaster's impact cannot be effective for long periods and should be discouraged and guarded against (Burkle, 1983).

Emergency workers from outside jurisdictions sent to the scene may also become convenient scapegoats of victims' anger at the destruction than has occurred. The necessary distancing from the emotional and physical aspects of the disaster that the worker must adopt in order to maintain their focus and do their jobs may be misinterpreted as a sign of uncaring and insensitivity by distraught victims, and they may be harshly rebuked for this perceived callousness (Butcher , 1989).

The Four Phases of Disaster

Emergency managers policy makers tend to agree on a convention that divides the disaster problem and its management into four phases: (1) mitigation, or activities designed to reduce the probability of disaster occurrence or the magnitude of its impact; (2) preparedness, such as the preparation of disaster plans, public education on disaster issues, and emergency worker training programs; (3) response, the performance of disaster-related tasks such as evacuation, search and rescue, patient care; and (4) recovery, long term efforts to rebuild the community after disaster strikes (Tierney, 1989). Although stress can be associated with each of the four phases, the response and recovery phase hold the most direct implications for stress mitigation.

When Disaster Strikes

When disaster does strike a community, it is common for outside agencies to offer assistance to the effected community. Often these offers are refused, not because of a lack of need, but rather because their number overwhelms the community already burdened by the disaster (Dunning, 1988). The overextension of manpower and attempts to allocate scarce resources to mitigate the effects of the disaster strains even the most competent departments. While the disaster operation continually demands more attention and resources, the regular, daily components of the job must be continually fulfilled. Just making sure that shift and work assignments are staffed, supplies are replenished, the media are informed, and all the other time consuming duties of a disaster response are performed causes most emergency services administrators to place a low priority on an intervention response for emergency workers. Emergency services, in general, have not considered the issue of psychological trauma inflicted upon their employees through working in disaster setting (Dunning, 1988).

Often times offers of support that could be used to address this problem tend to bring this issue onto the organizational agenda. Typically the response to the problem is: do nothing, believing that such injury is not likely or that action requires more careful consideration, or accept one of the offers based on expediency or a generally cursory examination of the department (Dunning, 1988). Usually the acceptance of the offer is done to provide a show of a good faith effort on behalf of the department and it is performed in such a way as to not cause much disruption or incur much cost.

The issue of traumatic stress in emergency workers incurred during disaster operations incites much disagreement in the emergency services community (Dunning, 1988). Most managers are wary of any debate that suggests job related duties and working conditions might produce psychological injury to the worker. The emergency services community has a long standing mind set that their selection and

training process produces employees that can adapt well under stressful conditions, and, in fact, that stress can bring out the best in a worker.

To recognize in any formal way the possible link between stress trauma reactions and the work performed during disaster operations might increase the likelihood of successful workers' compensation claims and in line of duty disability retirements filed against that entity (Dunning, 1988). The standard response from emergency service administrators is to assert that the current training and support services provided sufficient protection against any injury, physical or psychological. Since 1955, when a landmark court case, Bailey v. American General, extended the workers' compensation law to psychological illness, there has been a tremendous increase in litigation asserting that on the job stress contributes to psychological disorders (Dunning, 1988).

Contemporary emergency service managers must take steps to differentiate between stressors which clearly are job related and those which are not, and to mitigate the effects of those stressors. Clearly, managers can no longer afford to ignore the issues pertaining to job related stress, such as those associated with long term disaster operations. In doing so, managers will provide a safer working environment for their subordinates while mitigating the effects of any possible legal action against the organization.

Legal Implications

Insofar as the legal implications of work related stress are concerned, workers' compensation case law reflects a liberal definition of work related injury. In Wolfe v. Sibley, Lindsay and Curr Company, the court accepted the link between the job stressor and the subsequent disability that caused an inability to function on the job without considering whether the job stressor caused the disability or just simply aggravated an existing condition (Dunning, 1988). On the other hand, some

courts have been reluctant to compensate workers due to the inability to establish either the cause or the extent of the injury (Ivancevich, 1985). Recent court actions involving psychological injury that have been litigated successfully, generally result from cases that also have a physical component, such as those involving accidents that have caused physical injury or death.

Discrete, specifically identifiable incidents that are unrelated to the usual performance of the duties of one's job and result in psychological injury have frequently been upheld by the courts. These claims are further advanced when the issue of psychological injury has physical manifestations. Therefore, workers' compensations claims typically focus upon whether or not an employee should be treated differently for an inability to work, because of a mental injury caused by the working environment as contrasted to a physical injury caused by the working environment (Lublin, 1980). If managers accept the premise that deployment at the scene of a disaster can result in a psychological reaction, then efforts to initiate programs to reduce its negative effect can be enacted. Obviously, it is in the managers best interest to identify situations that are stressful before legal liability is incurred. The common response, ignoring problems or disciplining employees, may prove to detrimental not only to the operation of the department but to the going concern of the agency. Emergency service managers need to decide whether they accept the fact that sufficient evidence exists to link psychological injuries, temporary or permanent, with the demands of working on the disaster scene (Dunning, 1988).

Keating (1985) suggests that there is a direct link between participation in a disaster operation and subsequent psychological, physical, and or behavioral impairment, both temporary and, in a few cases, permanent. Given this point, the emergency service manager must decide at which point he should intervene to mitigate the effects of stress. This can be done before the disaster, during the disaster, or subsequent to the disaster operation (Dunning, 1988).

Predisaster Stress Management

An organization that accepts the premise that it must provide training to its personnel on stress management should develop a stress diagnostic system, especially in those areas where it knows that not all stress can be eliminated (Ivancevich, 1985). Diagnosis can occur prior to the disaster. The department can monitor the day to day alarm responses and watch for indicators of possible psychological injury, such as: chronic illness; changes in turnover; transfer requests; sick leave usage; and disruption of normal labor and management relations. Procedures developed for monitoring and diagnosing during this predisaster phase will lay the ground work for activities to take place after the disaster strikes. The diagnosis and identification of potential job stressors increase management's awareness and sensitivity to workers' concerns , in addition to providing valuable insight (Dunning, 1988).

As with any other fundamental change in the fire service, management must take a lead position carrying change through. Managers must play a leading role in instituting stress prevention programs, or their lack of commitment will be seen as an insensitivity to the workers needs.

Training

Training on the effects of stress during disaster operations should be a part of the on-going educational development of the emergency worker. Dunning (1988) suggests that disaster operations are similar to the day to day alarm activity normally experienced by emergency workers, only on a much larger scale. Body handling, extrication, emergency medical treatment, scene preservation are routine activities for emergency workers. Therefore, since disasters are so far and few between, focusing upon disaster psychological injury may be difficult to accomplish. Dunning (1988) writes that,

> however, if couched in a program which looks at rehabilitation for a variety of duty related injuries, including back and knee, post shooting, and accident, in addition to general conditioning and nutrition information, the training would be both timely and extremely helpful to the worker and to the department which ultimately bears the cost, either financially or in lost manpower and productivity (p. 289).

The intent of this training is to change the paradigm of the emergency service community. By equating psychological injury with the other more commonly known and accepted forms of duty related injury, the likelihood of follow through is enhanced. Psychological injury is thus not singled out as something unusual, but is something that can happen to anyone in the normal performance of his job (Dunning, 1988). Therefore, prevention and rehabilitation programming is beneficial both for the emergency worker and the department.

According to Dunning (1988),

> the goal of training is to inform the worker of the natural consequences of disaster involvement and to indicate that the organization sees a range of reactions as normal, with the expectation that the worker participate in some form of intervention program when symptoms prove unpleasant or interfere with work performance. The organization thus not only communicates organizational ownership of the symptoms, but also indicates that the individual worker shares responsibility for resolution. The training should include, as it would for physical injury, methods of rehabilitation and resolution for traumatic stress (p. 289).

Once implemented, this training program will serve as documentation as to the department's recognition and action towards mitigating the effects of stress in disaster operations. Once the training has begun, an ongoing evaluation of its success or failure will act to serve as the department's

commitment that appropriate actions are taking place to mitigate stress reactions in their employees. Ivancevich (1985) writes that, "management should view the handling of stress related liabilities as a process that includes problem identification, solution implementation, and follow-up to evaluate organizational response" (p. 290).

In preparing disaster training, managers should attempt to determine what specific functions during disaster operations typically increase stress levels among workers. Armed with this knowledge, managers can amend Standard Operating Guidelines (SOG) to see if there is a less stressful method of performing this task. According to Dunning (1988), "a frequently cited concern amongst disaster workers is the failure to recover all body parts in situations where intact remains are rare" (p. 290). The use of a fan out search can result in overlooked body remains. Substituting a right angle search, which involves two line passes at right angles, effects a more detailed search pattern and less chance that a body part may be overlooked. This simple change in the search SOG provided the disaster workers with the sense that a more detailed, compete search has been accomplished and the chance of error has been diminished.

Stress Management During the Disaster Operation

According to Noy (1984), "providing brief respite therapy in a relatively secure, stress free setting has a great benefit toward returning a productive worker to the field" (p.291). Disaster workers that complain of stress related symptoms in the field typically have their anxiety resolved simply by talking to someone about their experiences. This finding suggests that organizations might find it advantageous to monitor disaster workers in the field in order to identify those who voice physical complaints and relieve them of duty for a short period of time, providing them with an environment that allows momentary removal form the disaster scene (Noy, 1984).

First line supervisors should be trained in identifying early warning signs of emotional upset so that they can relieve workers in stressful task assignments before psychological injures occur. The positive attributes of early recognition and removal from the stressful environment lessen the harmful effects of stress upon the emergency services worker (Solomon, 1986). Training should be developed to educate the front line supervisors on how to monitor the disaster worker in the following areas:

- time on task,
- task function,
- level of stressful exposure, and
- indications of fatigue.

These front line supervisors are in the best position to determine which workers need to be rotated out of the disaster area for rehabilitation. According to Dunning (1988), "it would be distracting and even disruptive to incorporate two simultaneous functions - disaster response and treatment - to compete for workers' attention" (p. 292). Therefore, attempting to place mental health professionals in the field to treat disaster workers would be inappropriate.

Once the disaster worker has spent the appropriate amount of time in the rehabilitation sector, consideration should be given as to whether to re-deploy the worker or relieve him from duty. Dunning (1988) writes that, " most experts agree that it is beneficial to maintain group contact as part of the recovery process" (p. 293). Appropriate action may call for the worker to man a scene security post, perform evidence preservation, or other non-stressful support functions around the parameter of the disaster site.

The issues confronted by emergency workers involve the awareness of their own personal vulnerability, which is no different from that for the rest of the community. They are also made aware

their own professional limitations at a time when normally professional identity is a source of internal support. Guilt related to the idea of profiting from the pain and suffering of others is another issue to be dealt with. Besides protecting emergency workers from personal pain, supervisors must understand that these responses facilitates coherent functioning of trained emergency workers under the trying pressure of disaster work (Wilkinson, 1989).

Stress Management after the Disaster

Departments should utilize the trained front line supervisors to identify those disaster workers that may need post disaster stress treatment. The supervisor should be provided with the information to give to the disaster worker so that he may seek treatment from an employee selected treatment program at the conclusion of the disaster. This method maintains the demeanor that the symptoms are related to a duty incurred injury and that the department claims responsibility for its resolution in cooperation with the injured (Dunning, 1988).

There may be a reluctance on the part of some emergency workers to seek treatment from some public mental health organizations. It may be difficult to persuade emergency workers to utilize the same services as those persons identified as that portion of the population that were to be scorned. To sit in the same waiting room with someone you may have picked up off of the street last week for a drug overdose could be perceived as demeaning.

Another problem associated with post disaster treatment is the potential loss of confidence with fellow workers who equate your need for treatment as a sign of personal weakness. This could easily be translated by them into the inability for you to provide back up at the next emergency incident. As a result of this, emergency workers, if they seek counseling at all, do so under the utmost secrecy. The loss of respect and confidence of peers and concerns for promotional opportunities cause many

workers to forego the benefit of mental health counseling. In the emergency services arena, the perception that to undergo psychological counseling is indicative of a personal weakness, rather than an occupational injury, is still prevalent (Dunning, 1988).

As stated earlier, the sentiment that a good emergency services worker is not psychological effected by duty assignment still prevails. Accordingly Dunning (1988) writes that, "in professions where one's own well-being depends upon the actions of coworkers, any indication of less than optimum functioning places doubt in the minds of those who might fear that their problem might affect their ability to provide back-up" (p. 296). Common fears associated with seeking psychological counseling might have on one's career include loss of respect, failure to attain promotion, or the loss of a high profile duty assignment.

Postdisaster Debriefing

Because disaster operations are typically outside the normal routine for emergency workers, new and innovative methods of performance usually arise. This state can result in suspension of normal values and expectations, allowing the introduction of unfamiliar procedures into an otherwise closed and nonaccepting culture. The best format for discussing and documenting these changes is the post incident debrief. The intent of the debrief is to:

- establish the structure for future psychological treatment if necessary,
- facilitate acceptance of psychological counseling, and
- establish a rapport with the mental health professional.

During the debrief participants are provided facts about what is known about psychological and behavioral reactions of others in like situations and professions. This method is used to acquaint the disaster worker with possible personal reactions and to begin preparation for needed psychological

counseling. According to Dunning (1988), "the objective of this approach is to minimize the impact of any ensuing problems in emergency workers by normalizing the experience of symptoms in hopes that their emergence will not prove discomforting to the worker" (p. 298). It is the intent of the facilitator of the debriefing to show how stress manifestations are normal and hopefully the emergency worker will turn to normal support channels in an effort to resolve the problem. If emergency workers know that flashbacks or nightmares are normal reactions to particular stressful events, they will not view these events with alarm if they occur. (Dunning, 1988).

Effects of Disaster on Communities

Contrary to popular belief, there is no evidence to justify the stereotypical notion that large scale, community wide disasters produce extensive panic like behaviors in the community. According to Warheit (1988), "studies have found that most postdisaster behaviors are purposive and oriented to a restoration of the community to its predisaster state" (p. 14). The fast pace of the rescue effort most likely had been misinterpreted as random, panic like behavior. Additionally, there is data that indicates the disaster often times leads to a sense of personal and social cohesiveness among those impacted communities. Feelings of solidarity and mutual support for the community are plainly evident (Warheit, 1988). Likewise, cases of looting are extremely rare in natural disasters (Myers, 1989).

However, insofar as stress is concerned, exposure to life-threatening events and to death heightens stress levels among disaster survivors. According to Bolin (1985), heightened stress levels are most commonly associated with:

- disasters with sudden, unanticipated onsets, that rapidly involve victims in the crisis situation,
- disasters in which victims are unfamiliar with, and unprepared for impact,
- disasters which impact a large segment of the population,

- disasters which victims witness the death of other victims, and
- disasters that are followed by a continued threat of recurrence, resulting in a prolonged period of threat (36).

The Effects of Differing Types of Disasters

Disasters can be categorized in two distinct types. First, are the natural disasters, such as: floods, hurricanes, and tornadoes. Natural disasters have what is called a low point. The low point is characterized by feeling, on the victims behalf, that the worst is over. Once this low point is reached restoration, normalization, and recovery can begin. Typically, the disaster creates a condition of heightened cohesiveness and social solidarity, resulting in a therapeutic community with a strong sense of collective purpose, interpersonal cooperation, and assistance (Fritz, 1961).

In direct contrast is the second type of disaster: technological disasters. Technological disasters involve nuclear plant accidents, toxic contamination, exposure to environmental pollutants. With this second type of disaster there is no low point associated with the event. The long term effects of technological disasters are typically unknown, can't be seen, and cast a doubt of uncertainty over the community for years to come (Levine, 1982).

Characteristics of Disasters

Barton (1970) writes that,

> disasters are characterized according to a number of different dimensions. Important features include: speed of onset (from slow, as in droughts, to sudden, as in earthquakes); scope of impact (limited, as in some tornadoes, to wide spread, as in hurricanes); duration of impact (short, as in a tornado and earthquakes, to long term, as in crescive floods and droughts); predictability (low, as in earthquakes, to high, as in hurricanes and floods); intensity of impact

(minimal, as in drought, to intense, as in tornadoes, earthquakes); and threat of recurrence (low as in some types of floods, to high, as in earthquakes) (p. 29).

Disasters which allow little or no warning (earthquakes) may be inherently more stressful than those that can be detected and for which warnings can be issued (hurricanes). Warnings allow individuals to take action to mitigate the likelihood of personal injury and property loss (Bolin, 1988). A warning period allows anticipatory socialization to occur, which reduces the stressful impact of the disaster. Thus, disasters preceded by adequate warnings are less likely to produce psychological distress (Bolin, 1988).

The threat of recurrence of a disaster has been found to be a source of stress in some disasters. The threat of recurrence, in terms of stress, is determined by victim perceptions of continued or renewed vulnerability rather than by the actual probabilities of event recurrence. Earthquakes and volcanic eruptions frequently present victims with reminders of the possibility of event recurrence through seismic activity and aftershocks in the aftermath of the disaster (Barton, 1970).

Factors That Places Individuals or Groups at Risk for Severe Stress

There are certain segments of the community that have the potential to be at risk for severe or prolonged stress reactions as a result of the disaster. Identification of these segments is important so that a prompt mental health response can be initiated where necessary.

Individuals that suffer from poor health or a recent illness may be at risk because of physical limitations, cumulative stress, or an inability to obtain needed medical treatment or medications (Myers, 1989). Along the same lines are those individuals that have disabilities. These persons, with mobility, sight, hearing, or speech impairments are at risk of injury or of not obtaining the needed supplies for recovery (Myers, 1989).

Language barriers may endanger individuals if they cannot understand evacuation orders, as well as interfere with their ability to obtain relief supplies. Additionally, recent immigration may leave individuals without family or a social support network (Myers, 1989).

The elderly are more vulnerable than most because they typically live on fixed incomes and live in homes that may not be structurally sound. Many elderly live in older homes, mobile homes, or modular housing units that are especially vulnerable to the effects of a disaster. Additionally, the elderly have fewer financial resources from which they can call upon to rebuild after the disaster. The establishment of peer support groups is a key service for the elderly that are victimized by disaster. Typical signs and symptoms observed in this group after a disaster are:

- depression,
- agitation, anger, irritability,
- sleep disturbances,
- disorientation, confusion, memory loss,
- decline in physical health (Peuler, 1988).

The elderly population also has a more difficult time seeking assistance from public and private agencies due to a lack of knowledge about services. Accordingly Peuler (1988) writes that, "…. inability to get disaster assistance, feeling overwhelmed by the paperwork involved, pride in making it all their lives without public assistance, and valuing their independence from public assistance can all create barriers" (p. 252).

Children are the second group that requires specific attention after disaster strikes. Parents, that are already under stress from the disaster, find it reassuring to have information on what to expect from their children as a result of the event. This information can be provided to parents through day care

centers, schools, churches, the media, and disaster assistance centers. Adults must be reminded that the behaviors presented by their children are normal responses to an abnormal situation (Peuler, 1988).

The focus of helping children through the aftermath of the disaster centers around six points. First, is the fact that the child's behavior is most likely a stress reaction to the disaster. Children may become hyperactive, excitable, or withdrawn and subdued. It is common for children to revert back to earlier behaviors of thumbsucking or bedwetting. Children may cling to their parents and whimper more than usual.

Second, is physical contact. Children need lots of reassurance that they will be protected during and after the disaster. Most children will welcome more hugs and physical contact during this period.

Third, is physical activity. Physical movement should be encouraged, especially during stressful times. Activities such as jumping rope or hopping around the room will help to alleviate some stress.

Fourth, is play reenactment. The use of toys will enable the child reenact the events of the disaster and will help him to integrate the experience.

Fifth, is food intake. During times of stress it is important that children have plenty of food and fluids available to them. The physical nourishment tends to be reassuring to the children at a time they feel vulnerable.

Sixth, is telling stories about their experience. Children need to talk about what has happened to them, their family, their home, and friends. The more than can be listened to the better (Project Cope, 1985).

Factors Related to the Event That Increase Stress Levels

Certain characteristics of a disaster may make the situation highly stressful for the individuals experiencing it. According to Myers (1989), the following factors are ones that might precipitate more severe anxiety or problems in recovery for survivors:

Lack of Warning. With sufficient warning, individuals can prepare for a situation both physically and psychologically, and traumatic effects may be reduced. A disaster that strikes without warning produces the maximum social and psychological impact.

Type of Disaster. Technological disasters are often more stressful for victims and workers than natural disasters because of the belief that the event should have been prevented. Feelings of anger and blame are often difficult to work through and may increase, rather than decrease, over time.

Nature of the Destructive Agent. If the cause of the disaster is clearly perceived and well known (such as a river that floods every year), it is less psychologically disturbing than an agent that is invisible and whose effects are unknown or delayed (such as chemicals or radiation).

Degree of Uncertainty and Duration of Threat. Those disasters with a high degree of uncertainty regarding recurrence, additional damages, or outcome of rescue attempts are more traumatic than disasters with fairly predictable outcomes. For example, aftershocks following an earthquake make it difficult for survivors to define when the danger is over and often cause increasing anxiety over time.

Time of Occurrence. Disasters that occur at night may be more psychologically disturbing than ones occurring during the day, due to the inability to orient oneself to the scope and danger of the situation in the darkness.

Scope of the Event. The more damage, injuries, and deaths there are, the greater is the intensity of psychological impact.

Personal Loss or Injury. The degree of loss, such as injury to self; injury or death of loved ones; loss of a home, job, or items of meaning; and the duration of loss are important factors.

Human Error. A situation that seemingly could have been prevented can generate emotional reactions making it difficult for victims to recover.

Properties of the Postdisaster Environment. Weather conditions (such as exposure to the heat, sunburn, cold, rain); hazards (such as toxic substances; insects, animals, and snake bites; poison ivy; communicable diseases; accidents; wounds; burns), poor living conditions (poor food; poor sleeping conditions; lack of water); and frustration (lack of supplies and equipment; transportation and communication disruptions) add intense, prolonged, and cumulative stresses to victims trying to recover (196-197).

Effects of Evacuation

Evacuation from a hazardous area, finding emergency shelter, and ultimately returning to one's home is a common social process. It is usually observed in response to hurricanes, floods, and forest/brush fires. Evacuation is non-stressful if victims are able to evacuate as a family, receive emergency shelter in the homes kin or friends, and return to their own homes in due time (Quarantelli, 1982). Evacuation as a family to the home of friends or family provides evacuees with social support. Conversely, families that are accidentally or intentionally separated, or families that can not stay together in the emergency shelter, are subject to increased stress levels.

When evacuation procedures are poorly managed by emergency services organizations, or when the shelter are dangerously close to the impact zone, victims typically experience anxiety and

anger over the process (Bolin, 1986). As Quarantelli (1985) writes, "… some possible psychological effects on evacuees stem not from the impact of the disaster, but from having to adjust to the action or inaction of organized helpers" (p. 128). Additionally, anxiety and stress levels may increase in the victims if they are not allowed to return to their homes in a reasonable amount of time (Parker, 1977).

Where victims go when they evacuate has an effect on their stress levels. Mass public shelters, such as those established by the Red Cross, are frequently avoided by evacuees who have options to go elsewhere. The primary place of evacuation for this group is with other family, friends, or at motel. Therefore, public shelters tend to be used disproportionately by evacuees of lower socioeconomic status that don't have these option available to them (Bolin, 1988).

For those evacuees that do stay with friends or family, the length of stay can have an effect on stress levels. In American society, with its emphasis on privacy, relationships between host and evacuee families can begin to deteriorate if they persist beyond a few weeks. Typically, levels of interpersonal conflict begin to rise over issues of crowding, money, and privacy (Bolin, 1988). Accordingly Golec (1983) writes that, "… such lengthy stays are unusual as victims are usually able to secure some form of temporary housing or are able to return to their own homes (p. 38).

Community Response After Disasters

The psychological needs of victims after a disaster have only recently attracted the attention of service providers. Peuler (1988) notes,

> natural disasters, including earthquakes, floods, hurricanes, and tornadoes have been present with mankind since primitive recorded time. Yet it is only in the past 15 years that as a nation we have begun to develop programs to address the emotional need of victims (p. 239).

The Disaster Relief Act of 1974 provides for grants to States for crisis counseling programs in cases of Presidentially declared disasters, when available State and local resources and services are inadequate. Funds come from the Federal Emergency Management Agency (FEMA), after consultation with the National Institute of Mental Health (NIMH) (Peuler, 1988). Local agencies typically involved in disaster relief are:

- the Red Cross,
- the Salvation Army,
- FEMA,
- local fire and police agencies,
- the National Guard, and
- local churches.

The focus of these agencies is to provide for the immediate physical needs of victims, including safe shelter, food, and clothing. Their ability to establish shelters and services quickly and efficiently is exceptional. Their staff and volunteers are well trained and know their roles in the disaster setting (Peuler, 1988).

In addition to the satisfying the physical needs of the disaster victims, these relief agencies are also providing an emotional component with their service delivery. As they provide shelter, food, and information they are also providing emotional support by their very presence and intervention. Because of this intense interaction with the victims of the disaster, the emergency workers themselves often become disaster victims, needing some assistance. According to Hartsough (1985), “certain types of event characteristics have the potential for creating emotional distress in disaster workers: personal loss

or injury, traumatic stimuli, and mission failure or human error. When all three are present the potential exists for a stress reaction" (p. 240).

Community based mental health agencies are in the best position to serve the emotional needs of the disaster victims. These agencies have the staff whose skills can be adapted to the needs of disaster victims, with the ability to assess, diagnosis, and intervene. This organization also has established networks with other public health organizations and can best coordinate the mental health response to the disaster (Peuler, 1988).

Disaster Victim Needs

The victims of disasters essentially need three things from emergency workers: (1) information, (2) support, and (3) assessment and treatment. The major needs are the first two, that of information and support. Disaster victims will first seek information about their loved ones and the extent of damage to their personal property. After a few days into the disaster, victims will then be able to assimilate other information pertaining to the incident and begin to develop a big picture view of the community (Peuler, 1988).

Inasmuch as support to the disaster victim is concerned, once the victim has assessed the damages to his property, assistance is critical. After the event has passed (hurricane, tornado, etc.), the community will experience tremendous cohesion and support. Peuler (1988) writes that, "neighbors who have previously never spoken to each other will often be working shoulder to shoulder in rescue and clean-up efforts" (p. 243). It is in this stage of recovery that intervention of the local mental health organization can be most productive. Victims will look to the non-victim segment of the community for

a sense of normalcy. The mental health organization can function as that link between the victim and non-victim during the long term disaster recovery.

Beyond the need for information and support, some disaster victims will need help from mental health counselors to recover from the experience. Victims may suddenly find that the coping mechanisms that they have used their whole lives to deal with stress are no longer enough to cope with the effects of the disaster. Mental health organizations can enlist the support of the local media to educate the community about the mental health issues relating to a disaster. Providing the media with simple, easy to read descriptions of common reactions that occur after a disaster can be helpful. It must be remembered that the focus of the offers for service is directed towards a segment of the population that, most likely, has not utilized mental health services in the past. It is helpful to remind victims that they are experiencing normal reactions to an abnormal situation (Peuler, 1988).

Project Cope published a handout relating to stress reactions after a harsh winter storm in Santa Cruz County, California during 1982. The Project Cope (1985) handout related the following information,

> During a disaster and for weeks or months after, people continue to experience emotional reactions. These are a reaction to living through an emergency. Some of these reactions are: irritability, fatigue, sleep disturbance, anxiety, anger, unusual physical ailments, and hyperactivity. Children are also susceptible to these feelings and may show them with anxiety, fear worry, behavioral problems, sleep disturbance, regressive behavior, and or bed wetting.
>
> Talk and listen to one another. Recount the experience of the disaster. Each time the experience is told you process what happened. The uncomfortable feelings will gradually

diminish with each re-telling. Preparation will help to alleviate anxieties about the future. You have been through the worst; you know what it is like so you can prepare for it.

Allow children to voice their fears-reassuring them and telling them about the plans you are making. It is OK for them to express their fears. This is how they understand them. Allow them to tell how they felt during the disaster and what they experienced (pp. 58-59).

Listing of the phone number of mental health organizations on the information given to the media is important. Victims will call weeks and months after the disaster for assistance. Handouts, like the Project Cope example, can be distributed through the media, at shelters, food distribution centers, post offices, pharmacies, schools, and churches (Peuler, 1988).

What Can be Done To Mitigate

The best way to reduce postdisaster stress is to prevent it from happening. Disruption of family, work, grief over the loss of loved one's, and nostalgia for lost personal property are major factors that contribute to stress. These negative effects can be eliminated or substantially reduced through adoption of better mitigation and preparedness measures. Emergency services organizations should be active in efforts to reduce disaster loss (Tierney, 1989).

Mental health organizations must be a part of the overall community response plan for disasters. These groups must establish the links with the rest of the emergency services community if they expect to be a player in the disaster response. These links must be developed well in advance of disaster so that relationships can be built and respect can be developed. Only as an integral part of the disaster response team will mental health organizations be able to be get to the front lines were their service will be needed.

The Goal of Intervention

Both the emergency worker and the disaster victim are subjected to high levels of stress before, during, and after the disaster event. These individuals are viewed as experiencing a period of transition in which the signs and symptoms of stress will dissipate, even if untreated, in a brief time span of about six weeks (Butcher, 1989). The focus of stress intervention is to reduce the present stress level and enable the individual to reestablish psychological equilibrium thereby promoting better adaptation. The primary goal is to assist the individual to manage the immediate stressful life situation (Butcher, 1989).

People who are experiencing high stress levels usually feel overwhelmed, they are anxious, or they may become quite angry or agitated. The individuals first reaction may be one of helplessness and shock and it is natural that one of the primary needs may be for safety. The fight-or-flight response may have pushed the person's body into a state of extreme tension. The victim needs to feel that he has been removed from harm's way and can now relax (Young, 1989).

The primary goal of intervention is symptom relief. The mental health worker attempts to provide structure to the individual, who is perhaps in a confused state, offering the individual an opportunity to ventilate feelings. The mental health worker serves as an objective reality and provides a balanced perspective on the present situation (Butcher, 1989).

An important goal of the community mental health organization is to provide free, immediately accessible mental health services to emergency workers and victims in the aftermath of a disaster. The role of the mental health worker is typically filled by a standby counselor. Standby counselors are mental health professionals within the community that volunteer their services for a period of about six weeks following a disaster (Butcher, 1989). A continually updated list of volunteer standby counselors is kept at the community mental health center where it can be easily accessed during an emergency.

Disaster Planning

The mental health community has an important role to play in the development of disaster plans. Mental health administrators must educate emergency planners that community panic and looting are not commonplace in the natural disaster setting.

The most likely hurdle that must be crossed during the planning stages is community denial that a disaster could effect them. Because disaster is so dreaded, people deny its likelihood even when living in high-risk areas. However, confronting denial is central to preventing victimization by natural disaster (Hoff, 1984). Mental health practitioners can be helpful to emergency planners by providing consultation on how to best deal with the issue of denial in the community (Myers, 1989).

Denial may significantly contribute to a communities reluctance to evacuate an area even in the face of imminent danger. People tend to normalize a frightening situation in order to minimize its terror and make it seem manageable. Knowledge of this phenomena can assist emergency planners in constructing a warning system that will be effective. Myers (1989) writes that, "warnings must be clear, consistent, specific, and given by a person with authority and creditability, leaving no loophole to disbelief. They must be given repeatedly and must be followed by instructions of what to do" (p. 202). Warnings, if followed by long periods of silence and no action plan, can serve to heighten anxiety and lead to further denial. If such action still does not mobilize individuals, emergency managers may need to escalate tactics to combat denial, for example, by asking residents refusing to evacuate for the names and addresses of their next of kin (Hoff, 1984).

Stress Reactions

During and after exposure to an intense, unusual, or abnormal disaster incident, some emergency workers and disaster victims will experience reactions that are out of the ordinary for them.

This is not an uncommon experience. The event may create a stress response which can result in a disruption of physical and psychological processes. These reactions are normal. Often these reactions occur immediately after the event, but they may appear hours, days, weeks, or months later. According to Lewis (1994) some of the more common reactions include:

1) Physical

- nausea
- intestinal upset
- fatigue
- chest pain
- chills
- muscle cramps
- headaches

2) Emotional

- anxiety
- grief
- guilt
- denial
- fear
- panic
- depression
- apprehension
- disturbed thinking

3) Cognitive

- memory problems
- poor attention
- nightmares
- intrusive images
- hyper-alertness
- loss of orientation
- poor problem solving
- poor decisions
- sleep disturbances

4) Behavioral

- withdrawal
- restlessness
- emotional outbursts
- changes in speech
- changes in appetite
- increased startle reflex
- blaming others

This is not an inclusive list. Some people exposed to the same event may not suffer any of these effects and this is also a normal reaction. It is important to remember that each of these are normal reaction to a stressful situation. There are some things you can do to help speed up the recovery process, they are:

1. Eat. Even if you don't feel hungry, try to eat something with nutritional quality. The stress reaction depletes energy levels so it is important that the food is available to keep the mind and body functioning normally.

2. Exercise. Regular exercise is ideal to total health and well-being, but it is especially important to get some type of exercise within 24 hours of the event and each day the symptoms persist.

3. Rest. Try to get plenty of rest. A common stress reaction is for people to try to bury themselves in work and activity. This can be self defeating physically and psychologically. If you find your sleep is interrupted, get up and replenish yourself. Eat something, read, watch television, talk to someone, or write about your experiences that day. After a short while you should find that you are able to return to bed and rest comfortably.

4. Talk to someone. It is important to share your thoughts and reactions about the event. Suppression of thoughts and reactions may pose or prolong the recovery process. Sharing is the mind's way of replenishing. It is also important to share your reactions with your loved ones so that they may understand and assist in your recovery (p. 93).

PROCEDURES

Definition of Terms

Mental Health Professional. A person who has completed a required course of study relating to mental illness and or psychiatric disorders.

Cognitive. The process of knowing in the broadest sense, including perception, memory, and judgment.

Behavioral. The way a person behaves, or acts; conduct; manners. An organism's

response to stimulation or environment, especially those that can not be observed.

Emotional. A strong feeling, excitement, and or a state of consciousness having to do with the arousal of feelings, distinguished from other mental states, as cognition, volition, and awareness of physical sensations.

Physical. Of the body as opposed to the mind.

Research Methodology

The desired outcome of this research was to create a Disaster Stress Audit for the Rehabilitation Sector officer to complete on emergency workers in the rehabilitation sector.

The research was action research in that the information gathered for the Literature Review was applied to the actual problem of a identifying stress in emergency workers. This information was embodied in Appendix E as a new Disaster Stress Audit Guideline.

Assumptions and Limitations

This new tool for the Rehabilitation Sector officer is only as good as the training the officer receives as he tries to applies it. During the author's 17 year tenure with the Orlando Fire Department, there hasn't been a training class offered on the topic of how to effectively evaluate the sign, symptoms, and or behaviors exhibited by someone suffering from a stress reaction, nor has there been a class on the dynamics of a disaster. This research project is meant to fill this void. The comprehensive literature review was designed to enlighten those officers with a desire to learn what the key components are relating to stress reactions in both the victims of the disaster and the emergency workers themselves.

It is hoped that the information contained herein will be read, discussed, and scrutinized by chief and company officers and mental health professionals alike. It is only

through this educational process that both sides can learn and grow to develop a better understanding of what disaster related stress is all about.

Survey: Definition of Population

A survey of 100 fire departments was conducted to analyze the different methods of contemporary stress evaluation currently used in the fire service today. The purpose of the survey was to quantify the number of departments, both locally and nationally, that (1) train their work force on the fundamentals of stress evaluation, (2) have methods in place to recognize the sign, symptoms, and/ or behaviors relating to a stress reaction, (3) determine the number of department that have a formal relationship with the mental heath professionals within their communities.

Population of the Survey

The population of the survey included 100 fire departments from across the nation. These one hundred departments provided an excellent cross section of both large and small communities. Appendix G contains a list of the departments the surveys were mailed to.

Collection of Data

There were 81 surveys returned of the 100 sent out for a 81% response rate.

Disaster Stress Survey

A second survey was conducted and its results were utilized to construct a Disaster Stress Audit Guideline that appears in Appendix E. The Disaster Stress Audit Guideline was constructed pursuant to the information contained within the Literature Review. Each attribute (sign, symptom, and or behavior) on the form was selected from the literature based upon its relevance to the subject of stress experienced by disaster workers.

The form then went through a validation process. This process consisted of sending the form to five independent Mental Health Professionals (MHP) soliciting their input. The MHP's were asked to rate each attribute, comparing each one against another, to determine the severity of each dimension. Once a numerical point value was assigned to each attribute, a total score was requested. The total score represented a "line in the sand" that if a disaster worker exceeded this total score, he or she would be relieved from duty. Once relieved from duty, the disaster worker would be referred to a MHP for assessment, evaluation, and or possible treatment before being allowed to return to work.

There was a 100% return of the surveys sent out. Each independent MHP provide a point value on the scale of one to five for each attribute and a total score. Once all of the data was collected, one of the five independent MHPs was asked to function as the lead MHP to assist in assimilation of the final product. Due to the fact that there were variances in the points given to each attribute and in the final score provided by the five MHP, the lead MHP had to agree all input into one final form. Taking into account his own information and that provided by his four colleagues, the lead MHP assigned the final point value to each attribute and assigned a final score. The lead MHP then judged the final form as valid.

The letter sent to each MHP is attached as Appendix C. The point values provided by each independent MHP is attached as Appendix D. The names of each of the five MHPs is attached as Appendix F.

RESULTS

Answers to Research Questions

Research Question 1. Stress may manifest itself as a physical, cognitive, behavioral, and or emotional response that may be experienced almost immediately or may be delayed days, weeks, or

months. This is not an uncommon experience. The event may create a stress response which can result in a disruption of physical and psychological processes. These reactions are normal. Each response (physical, cognitive, behavioral, and or emotional) has a list of detailed factors that can be noted by direct interaction with the emergency worker. The complete list of these factors are included as part of Appendix D.

Research Question 2. Identification of stress reaction training should be included as part of a basic orientation and training for new employees. Every emergency services department (police, fire, hospital) should mandate that each employee receive training on the signs, symptoms, and or behaviors that are associated with a stress reaction. Those officers that typically assume command of sectors during an incident should be trained on the application and use of the Disaster Stress Audit Guideline form. This training would best be accomplished by having a mental health professional demonstrate the use of this form by talking to, listening, and observing a mock patient. After the demonstration, each student would then use the form to evaluate a different mock patient suffering from different sign, symptoms, and or behaviors. The goal of this hands on training would be to ensure the evaluator become competent in the use of the form. This process would continue with several different patients until the person conducting the audit gains competency on the use of the form. This may require several different class periods to accomplish the goal.

Research Question 3. The current mind set, according to the results of the survey done for this project, clearly indicates that emergency workers believe they are not psychologically affected by the work they perform on the emergency scene. Herein lies the importance of stress education. Only by developing the understanding that nearly everyone, both victims and emergency workers alike, are going to suffer, to some extent, the effects of disaster related stress, will the emergency service community

head off this pervasive problem. Emergency workers must receive education relating to the causes of stress, the phases of the disaster in which stress is likely to occur, and how to identify someone that is likely suffering from the effects of stress. Once this task is complete, perhaps the paradigm reflecting the current notion that emergency are generally impervious to the effects of stress will be changed.

Research Question 4. The Disaster Stress Audit Guideline (Appendix E) was evaluated by five mental health professionals. The "Points" that were assigned by the professionals to each sign, symptom, and or behavior were then averaged to determine the final "Points" for each dimension. The second task performed by the professionals was to determine the total number of points, that, if incurred by an emergency worker, would cause him to be relieved from duty and sent to seek further evaluation and or treatment. The average score for the five professionals was 25. Therefore, if an emergency worker is given a score of 25 or greater by the Rehabilitation Sector officer, he/she would be removed from active duty until such time that a mental health professional could talk to the individual and formally assess their needs. The Disaster Stress Audit Guideline is designed to fill the need for a tool to function as a method of identifying those suffering from a stress reaction and in need of help.

Research Question 5. The emergency services community should collaborate with the mental health community to develop standard operating procedures and guidelines directly relating to mitigating the stress reactions of both the victims and emergency workers. Partnerships should be entered into that foster a cooperative effort between these two groups. Developing these relationships, long before disaster strikes, will enable the two groups to function as one during the time of crisis. Each group needs to become familiar with each other's standard procedures in times of disaster, so that a focused, single point of attack is instituted during the disaster. This is not to say the mental health workers will be on the front lines during extrication and body recovery activities, but they can assume a role of

"aggressively hanging around" to ensure that stress issues are addressed. By pre-planning these events, the two entities become familiar with one another and streamline the task of helping those during their greatest time of need.

Research Question 6. According to the survey, the condition still exists in the fire service today that governmental entities do not equate psychological injuries with the more commonly seen physical injuries that emergency workers typically suffer from. Many administrators apparently don't accept the premise that deployment at the scene of a disaster can result in a psychological reaction. To recognize in any formal way the possible existence of stress related reactions through official channels and subsequent treatment might increase the likelihood of successful worker's compensation claims (Dunning, 1988).

Therefore, it is imperative that the fire service work to educate the work force in identifying and understand the implications of untreated stress reactions. Through this educational process, rather than attempting to gain an equal status for psychological injury, perhaps more psychological injuries can be prevented.

Results of the Survey

Out of the 100 fire departments surveyed, Appendix B reflects that over 97% of respondents do not have a "stress audit" to monitor the physical and psychological impact of disaster operations on their personnel (Question 1).

The survey showed that 76% of respondents do not provide training to their front line supervisors to monitor: time on task, task function, level of stressful exposure, indicators of fatigue to determine a crew rotation schedule (Question 2). This statistic reflects that an overwhelming percentage of departments do not see the stress levels of emergency workers on the scene as a pressing issue.

Question 3 goes on to depict that another 85% of respondents do not have a mandatory referral program to a mental health professional for those individuals that are affected by a stress reaction.

When asked if their department incorporated an Employee Assistance Program (EAP) over 43% did not (Question 4).

The sentiment that "a good fire fighter is not psychological affected by work on the emergency scene" is still prevalent in the fire service today. Question 5 reflects that over 62% of responding departments feel that this paradigm remains as a standard in their department today.

Another overwhelming statistic is the percentage of departments that do not have "Standby Counselors" that volunteer their services after a disaster strikes. Approximately 76% of the departments surveyed do not have such a relationship established with this group (Question 6).

According to the survey, most departments do not take the requisite time to identify "at risk" groups in their community before disaster strikes (Question 7). Nearly, 67% of the departments do not actively identify those: in poor health; with disabilities; with previous traumatic life events; or people with poor coping skills (alcoholics, drug addicts).

Most departments do not equate psychological injury with the more commonly known and accepted forms of duty related injury. Over 77% of respondents stated that they felt as though their departments did not see a psychological injury on the same plane as a physical injury (Question 8). Most departments surveyed (56%) do have some type of "Public Education for Disaster Program" in place for their communities (Question 9). Most departments stated they have had a Community Emergency Response Team program up and running for several years now.

Question 10 noted that nearly 61% of respondents stated that they do have a formal relationship established with a community based "helping agency". Most of these departments stated that they are

actively working with either the American Red Cross or the Salivation Army within their perspective communities (Appendix B).

Unexpected Findings

An interesting unexpected finding from the survey was the fact that many departments do not have a relationship established, in any form, with either a "helping agency" or a group such as EAP or standby counselors. Nearly 77% of respondents do not train their supervisors to monitor the psychological effects that disaster operations have on their subordinates. Additionally, only two of the respondents had a stress audit, or any assimilation thereof, developed and in use for their community. The fact that 85% of responding departments did not consider having a mandatory referral program in place for psychological injured emergency workers, was an unexpected finding.

Disaster Stress Audit Guideline Form

Based upon a review of the literature, the Disaster Stress Audit Guideline Form was created. This new form is included as Appendix E.

The single page form provides a place for emergency workers name, date and time of evaluation, the number of hours the emergency worker has been involved in the disaster operation, and the raters name. Additionally, there are instruction as to how to complete the form and recommended action once the score is computed. The evaluation section of the form outlines 48 individual signs, symptoms, and or behaviors which the evaluator tries to identify in the emergency worker. For those signs, symptoms, and or behaviors that are determined to be present, the appropriate "Points" are carried over to the "Score" column. Once this is complete the "Score" is totaled. If an emergency worker obtains a "Score" of 25 or greater they are relieved from duty and directed to a mental health professional for further evaluation and or treatment.

DISCUSSION

The Disaster Stress Audit Guideline, which represents the results of this research, embodies the focus of the process outline by Lewis in 1994. The stress audit begins with the supervisory staff being aware of the emotional state of their personnel. As part of the supervisors training, they should gain an understanding of the signs and symptoms of a stress reaction. They should know how to contact the appropriate mental health professionals if the need arises.

Next, in long duration disaster operations, emergency workers should be rotated from high intensity situations to rehabilitation sectors for relief. It is here, in the rehabilitation sector that the stress audit will be performed. Those individuals that score 25 or above will be relieved from duty. These workers will be directly referred to a mental health professional for further evaluation and or treatment for a stress reaction. According to Lewis (1994), "it is essential that the mental health professional explain to the emergency worker that the stress reaction is the body and mind's coping response of a normal person to an abnormal situation" (p.67). If the emergency worker feelings are shared, understood, and accepted by one's self and others, the recovery will be more rapid and more thorough (Lewis, 1994).

Because this new stress audit is untested and based upon a synthesis of information gathered in this research, a testing period should be invoked to determine its applicability. Dessler (1995) reminds us that we should not try to be experts, don't try to psychoanalyze your employees. This is new ground for our department and there will be an associated learning curve with this new audit process.

The Disaster Stress Audit Guideline is the first of its kind for the Orlando Fire Department. This author hopes that the other managers within our department will take the time and effort to review the important points depicted in the Literature Review on proper evaluation of stress. This subject matter

hasn't been addressed before by our upper level management, so self motivation to become familiar with this information is necessary. This study has hopefully produced an instrument that will advance the job performance of not only the employee, but of the manager also. If nothing else, the stress audit will serve to jog the minds of managers burdened with the responsibility of helping others do their job better without the benefit of a psychology degree.

RECOMMENDATIONS

The stress audit must contain a educational element. OFD should integrate use of this audit in its ongoing training and assure that the stress management and recovery mentality is ingrained in both Company Officers and managers alike. Written instruction explaining the use of the form should be more fully developed.

The information obtained for completed stress audit could be added to a data base. The city should work with Information Systems (computer department within the city) to develop an information retrieval system accessible to appropriate managers at their desk top computers. This information may be useful when trying to determine how much exposure and for how long an emergency worker should be subjected to disaster operations.

Periodic review of the form should take place to ensure contemporary views on stress are incorporated within the form. New ideas based on the latest research will continue to improve this vehicle.

As the form matures and evolves through training, review, and revision, OFD should develop a similar form for victims massed within community shelters. Once all the managers have received training on the stress audit similar training should be provided to company officers that are likely to serve in the role of a sector officer on a large scale disaster.

The score of 25 may need to be re-examined. Many will argue that some of the signs, symptoms, and or behaviors are infinitely more important than others on this list. Perhaps a larger group of mental health professionals can develop a better consensus about when an individual should be relieved from duty. Upon completion of that task, the action section can be changed to reflect this new consensus figure.

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APPENDIX A

Stress in Disaster Operations Survey Form

Stress in Disaster Operations Survey Form

1. Does your department provide a "stress audit" to monitor the physical and psychological impact of disaster and other catastrophic situations on your personnel? (If Yes, please remit a copy) Yes ___ No ___

2. Does your department provide training to front line supervisors to monitor: time on task, task function, level of stressful exposure, indicators of fatigue to determine how often to rotate crews into "rehabilitation" areas? Yes ____ No ____

3. Does your department have a "mandatory referral" program in place to which a stress effected employee can seek treatment? Yes ____ No ____

4. Does your governmental entity contract with an Employee Assistance Program (or other like group of mental health professionals)? Yes ____ No ____

5. Is the sentiment that "a good fire fighter is not psychologically affected by work on the emergency scene" prevalent in your department today? Yes ____ No ____

6. Does your department have an existing relationship with "Standby Counselors"? Standby Counselors are mental health professionals who volunteer to serve as therapist for a period of time following a disaster. Yes ____ No ____

7. Does your department identify groups within your community that stand to be at greater risk when a disaster strikes? Examples include those: in poor health, with disabilities, with previous traumatic life events, or people with poor coping skills (alcoholics, drug addicts). Yes ____ No ____

8. Does your governmental entity equate psychological injury with the more commonly known and accepted forms of duty related injury? Yes ____ No ____

9. Does your department have a "Public Education for Disaster Preparedness" program in place to educate your community on disaster issues? Example: Community Emergency Response Team (C.E.R.T.). Yes ____ No ____

10. Does your department have a relationship with a community based "helping agency" such as the Red Cross, Salvation Army, or public health agency to come train your staff in understanding the reactions of disaster victims and providing effective approaches for dealing with these victims? Yes ____ No ____

11. How many paid personnel does your department employ? ____

APPENDIX B

Survey Results

APPENDIX B

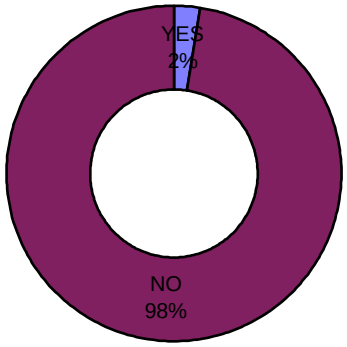
Survey Data Analysis

Results from survey questions:

Question 1. Does your department provide a "stress audit" to monitor the physical and psychological impact of disaster and other catastrophic situations on your personnel?

	Responses	Percentages
YES	2	2.47%
NO	79	97.53%
Total	81	100.00%

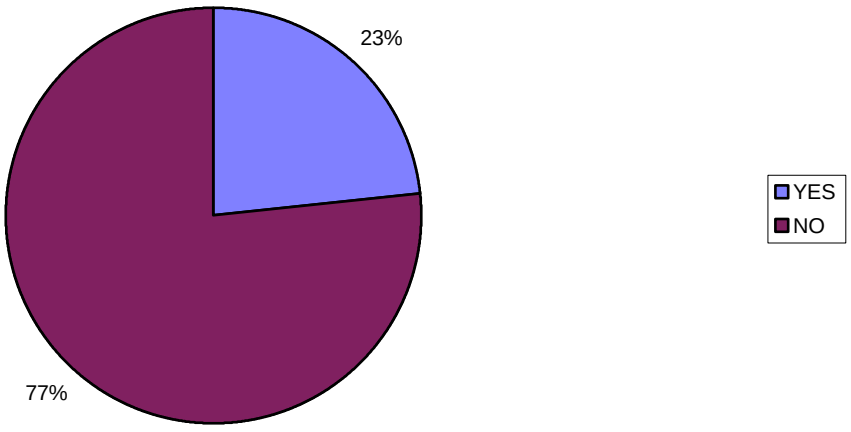
Question 1



Question 2. Does your department provide training to front line supervisors to monitor: time on task, task function, level of stressful exposure, indicators of fatigue to determine how often to rotate crews into "rehabilitation" areas?

	Responses	Percentages
YES	19	23.46%
NO	62	76.54%
Total	81	100.00%

Question 2



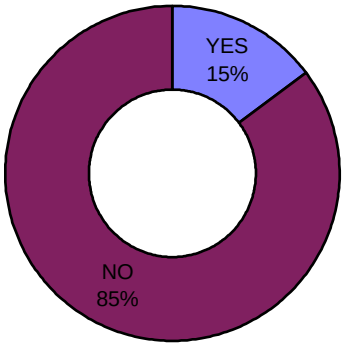
APPENDIX B

Survey Data Analysis

Question 3. Does your department have a "mandatory referral" program in place to which a stress effected employee can seek treatment?

	Responses	Percentages
YES	12	14.81%
NO	69	85.19%
Total	81	100.00%

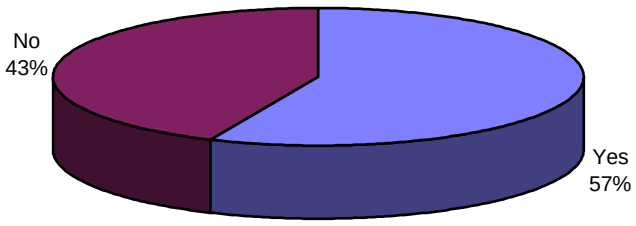
Question 3



Question 4. Does your governmental entity contract with an Employee Assistance Program (or other like group of mental health professionals)?

	Responses	Percentages
Yes	46	56.79%
No	35	43.21%
Total	81	100.00%

Question 4



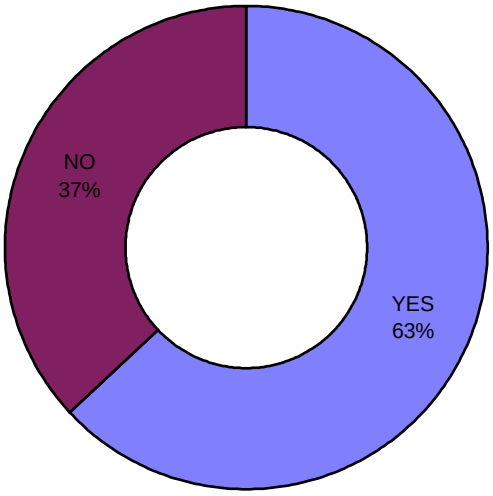
APPENDIX B

Survey Data Analysis

Question 5. Is the sentiment that "a good fire fighter is not psychologically affected by work on the emergency scene" prevalent in your department today?

	Responses	Percentages
YES	51	62.96%
NO	30	37.04%
Total	81	100.00%

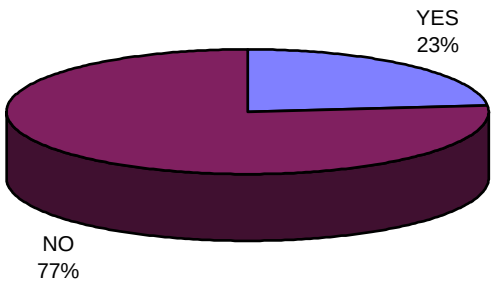
Question 5



Question 6. Does you department have an existing relationship with "Standby Counselors"? Standby Counselors are mental health professionals who volunteer to serve as therapist for a period of time following a disaster.

	Responses	Percentages
YES	19	23.46%
NO	62	76.54%
Total	81	100.00%

Question 6



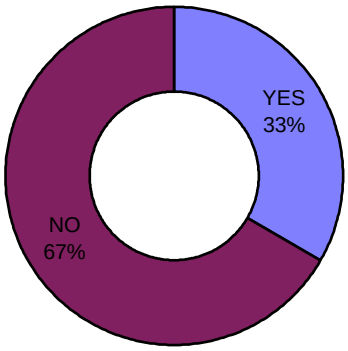
APPENDIX B

Survey Data Analysis

Question 7. Does your department identify groups within your community that stand to be at a greater risk when disaster strikes? Examples include those: in poor health, with disabilities, with previous traumatic life events, or people with poor coping skills (alcoholics, drug addicts).

	Responses	Percentages
YES	27	33.33%
NO	54	66.67%
Total	81	100.00%

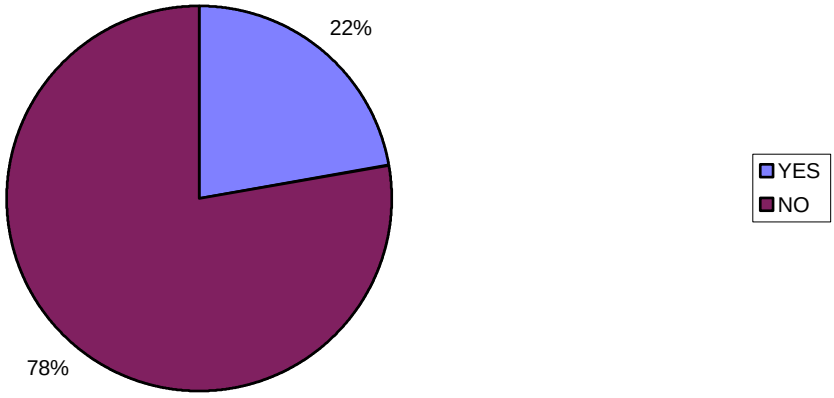
Question 7



Question 8. Does your governmental entity equate psychological injury with the more commonly known and accepted forms of duty related injury?

	Responses	Percentages
YES	18	22.22%
NO	63	77.78%
Total	81	100.00%

Question 8



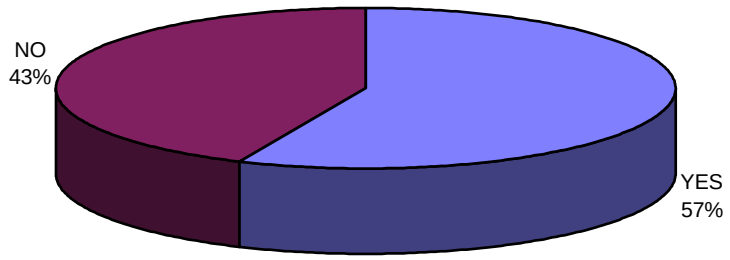
APPENDIX B

Survey Data Analysis

Question 9. Does your department have a "Public Education for Disaster Preparedness" program in place to educate your community on disaster issues? Example: Community Emergency Response Team (C.E.R.T.)

	Responses	Percentages
YES	46	56.79%
NO	35	43.21%
Total	81	100.00%

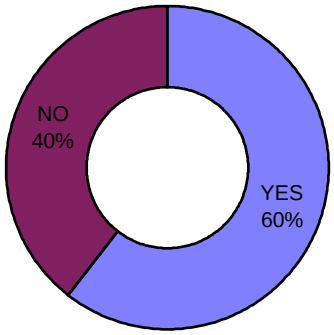
Question 9



Question 10. Does your department have a relationship with a community based "helping agency" such as the Red Cross, Salvation Army, or public health agency to come train your staff in understanding the reactions of disaster victims and providing effective approaches for dealing with these victims?

	Responses	Percentages
YES	49	60.49%
NO	32	39.51%
Total	81	100.00%

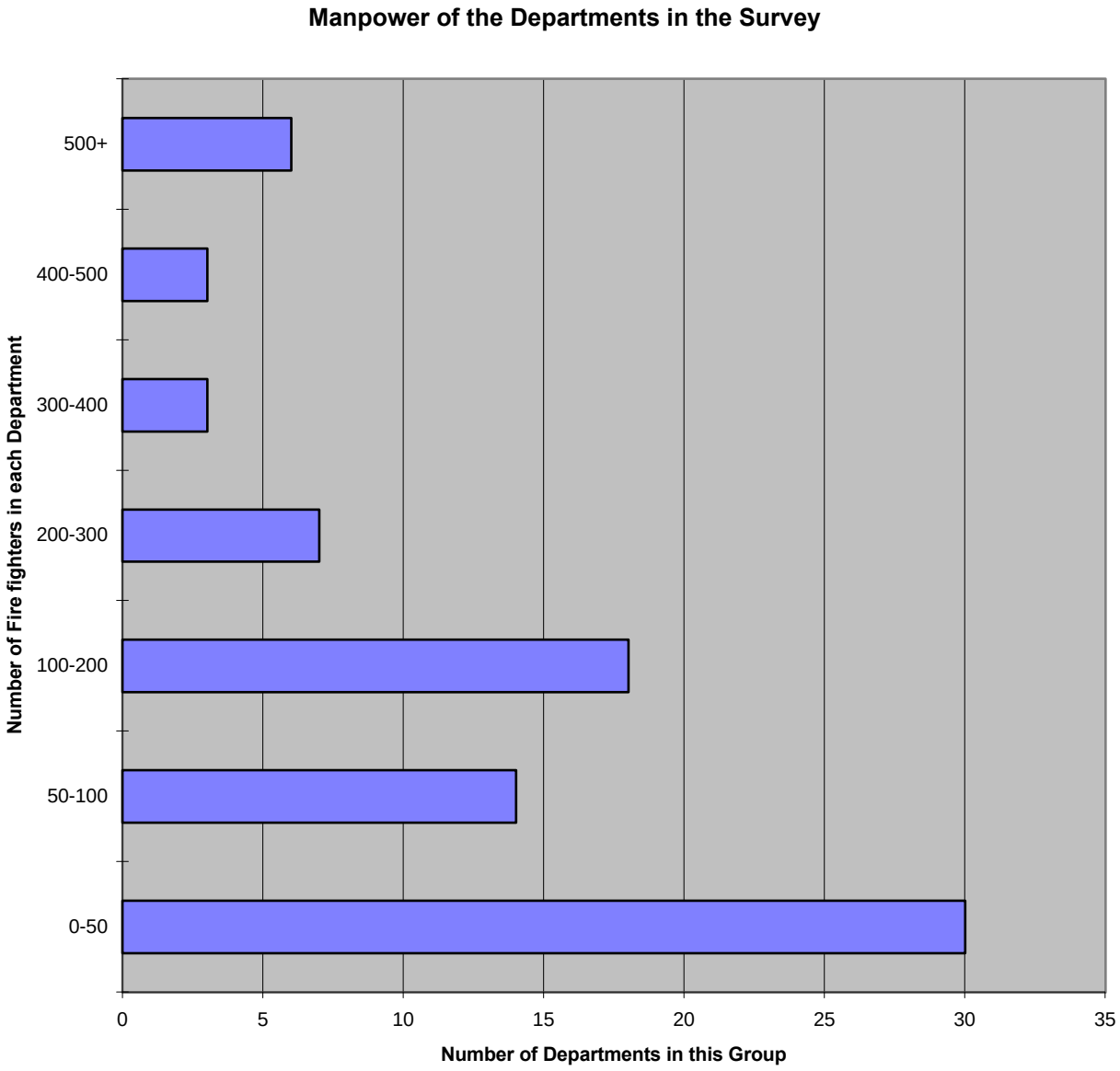
Question 10



APPENDIX B

Survey Data Analysis

Question 11. How many people does your department employ?



Grouped Data: Size of the Department	
0-50	30
50-100	14
100-200	18
200-300	7
300-400	3
400-500	3
500+	6
	81

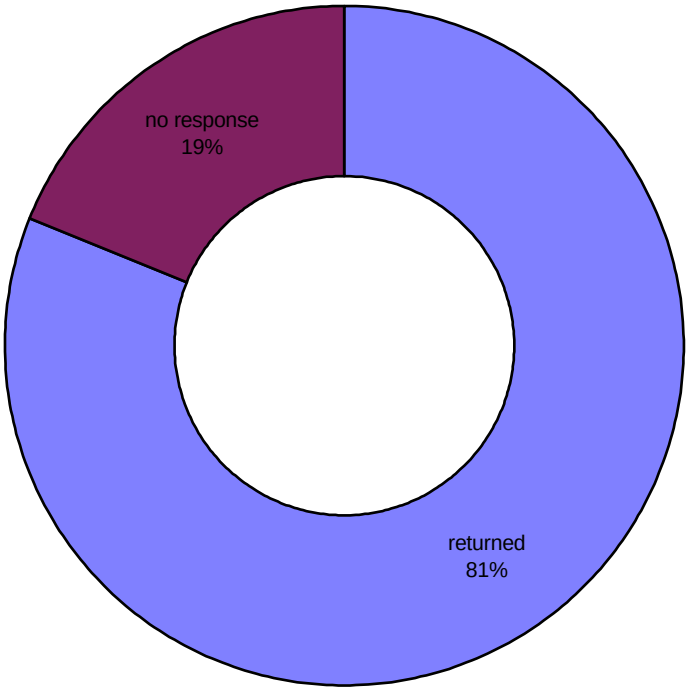
APPENDIX B

Survey Data Analysis

Responses to the Survey

Total Survey Response:	returned	81	81%
	no response	19	19%
	Total	100	100%

Survey Response Chart



APPENDIX C

Participant's Request Letter

District Chief RL Sorenson

Orlando, FL Fire Department

July 20, 1999

Dear Mental Health Professional:

As a student enrolled in the National Fire Academy's Executive Fire Officer Program, I am compiling data for an applied research project. My project is designed to identify and mitigate the stress that disaster workers (fire fighters) are exposed to during long term disaster operations. At the conclusion of the project, I hope to provide our department with a Disaster Stress Audit Guideline that will identify the signs, symptom, and/or behaviors that are associated with a stress reaction. This form will be used by a lay person, in the Rehabilitation Sector of an incident, to prevent those individuals suffering from stress to reenter the area and continue to work.

The person using the form will observe, talk to, and listen to an emergency worker in the Rehabilitation Sector. Based upon this information, the form will be completed by carrying over all applicable "Points" to the associated "Score" column. The "Score" column will then be totaled. If a score of x or higher is achieved, that emergency worker will be relieved from duty and referred to a mental health professional for further evaluation and possible treatment.

I would like you to do two things:
1. assign a number in the ***"Points"*** column for each sign, symptom, and/or behavior, that if exhibited by an emergency worker, is an appropriate weight compared to all the other sign, symptoms, and/or behaviors, and
2. provide me with a total score, that if obtained by the emergency worker, would cause him/her to be relieved from duty and referred to a mental health professional.

I envision all ***"Points"*** will be in a range from one to five. Also, I envision most sign, symptoms, and behaviors to be a one or two, however, that is up to you. You will need to determine what the appropriate score is to have the person relieved from duty. Perhaps a score of one will cause this to happen or perhaps a score of fifty will cause this to happen, I don't know.

The department currently does not have a means in place to identify the signs of stress, educate the department about stress reactions, or monitor the mental health of this group during disaster operations. I know that this is may not the best method for monitoring the mental health of our employees, but currently we have NO method in place to perform this function. This is a start. I would appreciate if you

109 Maplewood Drive • Sanford, Florida • 32771-3660
(H) 407•321•4052 (P) 407•400•0557
e-mail: rls59@Yahoo.com

would take the time to complete and return the enclosed survey. Please feel free to add additional comments on a separate piece of paper if necessary.

I would like to thank you for your time and cooperation, your efforts are sincerely appreciated.

Respectfully,

Robert L. Sorenson

Enc.

APPENDIX D

Stress Audit Form Compilation

City of Orlando Fire Department

Disaster Stress Audit Guideline

PHYSICAL	*1*	*2*	*3*	*4*	*5*	Mean	FINAL
Blurry vision	5	3	4	1	1	3	3
Chills	3	1	3	1	1	2	2
Diarrhea	3	2	4	1	2	2	2
Difficulty breathing	5	1	5	2	2	3	4
Dizziness	4	1	4	2	2	3	4
Excessive sweating	1	1	5	1	2	2	2
Fatigue	3	1	5	2	2	3	3
Feeling faint (light-headedness)	5	1	5	2	2	3	3
Headaches	1	1	2	2	3	2	2
Hot flashes or flushing	2	1	1	1	3	2	2
Hyperventilation	5	3	5	3	4	4	4
Intestinal upset	3	2	3	1	2	2	2
Muscle cramps	3	1	3	1	2	2	2
Nausea and/or vomiting	5	2	5	2	2	3	3
Rapid heart rate after prolonged rest	5	4	5	2	3	4	4
Ringing it the ears	1	2	1	2	1	1	2
Tingling sensation in arms or hands	3	2	5	2	1	3	3
Uncontrollable shaking or trembling	5	3	5	3	3	4	4
Urinary or fecal incontinence	5	5	5	3	5	5	5
EMOTIONAL							
Anxiety	3	1	3	2	3	2	2
Apprehension	4	1	3	1	4	3	3
Denial	3	2	2	5	4	3	4
Depression	4	2	3	3	4	3	4
Disturbed thinking	5	3	5	5	5	5	5
Fear	4	1	5	1	4	3	3
Grief	2	2	3	1	3	2	2
Guilt	4	1	2	1	3	2	2
Helplessness	4	1	5	2	3	3	3
Nervousness	3	1	3	1	3	2	2
Panic	5	2	5	5	5	4	5
COGNITIVE							
Hyper-alertness	1	2	1	2	3	2	2
Intrusive images	4	1	5	5	5	4	4
Loss of orientation	5	2	5	4	4	4	4
Memory problems	3	2	3	3	4	3	3
Nightmares	3	2	2	2	4	3	3
Poor attention	3	3	4	2	3	3	3
Poor decisions	5	3	5	4	3	4	4
Poor problem solving	5	3	5	3	3	4	4
Sleep disturbance	3	2	3	2	3	3	3
BEHAVIORAL							
Avoidance	4	1	5	3	4	3	4
Blaming others	2	1	3	4	4	3	3
Change in appetite	1	1	1	2	3	2	2
Change in speech	1	2	2	4	4	3	3
Emotional outbursts	3	2	3	2	4	3	4
Increased alcohol usage	4	3	5	5	3	4	4
Increased startle reflex	3	3	3	4	2	3	2
Restlessness	2	1	1	1	3	2	2
Withdrawal	4	2	3	3	4	3	3
TOTAL Possible Points	164	90	173	116	147	138	148

APPENDIX E

Stress Audit Form

City of Orlando Fire Department

Disaster Stress Audit Guideline

PHYSICAL	*Points*	*Score*
Blurry vision	3	
Chills	2	
Diarrhea	2	
Difficulty breathing	4	
Dizziness	4	
Excessive sweating	2	
Fatigue	3	
Feeling faint (light-headedness)	3	
Headaches	2	
Hot flashes or flushing	2	
Hyperventilation	4	
Intestinal upset	2	
Muscle cramps	2	
Nausea and/or vomiting	3	
Rapid heart rate after prolonged rest	4	
Ringing it the ears	2	
Tingling sensation in arms or hands	3	
Uncontrollable shaking or trembling	4	
Urinary or fecal incontinence	5	
EMOTIONAL		
Anxiety	2	
Apprehension	3	
Denial	4	
Depression	4	
Disturbed thinking	5	
Fear	3	
Grief	2	
Guilt	2	
Helplessness	3	
Nervousness	2	
Panic	5	
COGNITIVE		
Hyper-alertness	2	
Intrusive images	4	
Loss of orientation	4	
Memory problems	3	
Nightmares	3	
Poor attention	3	
Poor decisions	4	
Poor problem solving	4	
Sleep disturbance	3	
BEHAVIORAL		
Avoidance	4	
Blaming others	3	
Change in appetite	2	
Change in speech	3	
Emotional outbursts	4	
Increased alcohol usage	4	
Increased startle reflex	2	
Restlessness	2	
Withdrawal	3	

Information
Disaster workers name:
Date/Time of Stress Audit:
Total hours worked during the event:
Person completing form:
Instructions: Observe, talk to, and listen to the Emergency Workers in the Rehabilitation Sector. Complete the Stress Audit by carrying the "Points" allocated to each sign, symptom, and /or behavior to its corresponding "Score" box. Once you have carried all applicable "Points" over to the corresponding "Score" box, total the score and place it in the box at the bottom of the form.
Action: If an Emergency Worker receives a score greater than **25**, relieve him/her from duty. Do not allow this person to reenter the disaster area without a referral to a mental health professional.

TOTAL	0

APPENDIX F

Independent Mental Health Professional Participants

Participants	Company	Address
Bruce A. Drazen, MSCJ, LMHC	The Allen Group	Longwood, FL 32779
Dr. Ellery Gray	Florida Department of Health	Tallahassee, FL 32399
Eric R. Siegel, MSW, LCSW	The Allen Group	Longwood, FL 32779
Mariana Williams, LMHC, NCC	The Allen Group	Longwood, FL 32779
Todd Schoening, MS, LMFT	Physicians Associates	Orlando, FL 32801

APPENDIX G

Survey Mailing List

Organization	City	ST
NATIONAL		
Abilene F.D.	Abilene	TX
Arlington F.D.	Arlington	TX
Aurora F.D.	Aurora	CO
Austin F.D.	Austin	TX
Balch Springs F.D.	Balch Springs	TX
Baytown F.D.	Baytown	TX
Beloit F.D.	Beloit	WI
Birmingham F.D.	Birmingham	AL
Bolder F.D.	Boulder	CO
Boston F.D.	Boston	MA
CDF County F.D.	San Luis Obispo	CA
Cedar Rapids F.D.	Cedar Rapids	IA
Chena Goldstream F.D.	Fairbanks	AK
Clark Co. Fire District	Ridgefield	WA
Clearwater F.D.	Clearwater	FL
Cocoa Beach F.D.	Cocoa Beach	FL
Colorado Springs F.D.	Colorado Springs	CO
Conover F.D.	Conover	NC
Ctrl. County F.D.	Saint Peters	MO
Ctrl. Jackson F.D.	Blue Springs	MO
Ctrl. Yavapai F.D.	Prescott Valley	AZ
D.C. Fire Dept.	Washington	DC
Decatur F.D.	Decatur	IL
Delgado C.C.	New Orleans	LA
DFW Intl. Airport F.D.	DFW Airport	TX
Downey F.D.	Downey	CA
East Lake F.D.	Palm Harbor	FL
Elizabeth F.D.	Elizabeth	NJ
Elk Grove F.D.	Elk Grove Village	IL
Fishers F.D.	Fishers	IN
Fitchburg F.D.	Fitchburg	WI
Fort Worth F.D.	Fort Worth	TX
Fostoria F.D.	Fostoria	OH
Ft. Wayne F.D.	Fort Wayne	IN
Garland F.D.	Garland	TX
Glendale F.D.	Glendale	CO
Guam F.D.	Hagatna	GU
Hammond F.D.	Hammond	LA
Hanover Park F.D.	Hanover Park	IL
Hendersonville F.D.	Hendersonville	TN
HI Airport F.D.	Lihue	HI
Hialeah F.D.	Hialeah	FL
Hill A. F. B. F. D.	Hill AFB	UT
Hobbs F.D.	Hobbs	NM
Honolulu F.D.	Honolulu	HI
Hot Springs F.D.	Hot Springs	AR
Houston F.D.	Houston	TX
Iowa City F.D.	Iowa City	IA
Irmo F.D.	Columbia	SC
Jackson F.D.	Jackson	MS
Johnstown F.D.	Johnstown	PA
Kansas City F.D.	Kansas City	MO
Key Largo F.D.	Key Largo	FL
Kingsport F.D.	Kingsport	TN

Lake Havasu F.D.	Lake Havasu City	AZ
Las Vagas F.D.	Las Vagas	NV
Lynchburg F.D.	Lynchburg	VA
Marysville F.D.	Marysville	WA
Memphis F.D.	Memphis	TN
Memphis F.D.	Memphis	TN
Mentor F.D.	Mentor	OH
Miami F.D.	Miami	FL
Miami Twnp. F.D.	Milford	OH
Montgomery Co. F.D.	Rockville	MD
Muscatine F.D.	Muscatine	IA
N. Myrtle Beach F.D.	North Myrtle Beach	SC
N. Providence F.D.	North Providence	RI
Nashville F.D.	Nashville	TN
Nederland F.D.	Nederland	TX
New Albany F.D.	New Albany	IN
Newark F.D.	Newark	OH
Odessa F.D.	Midland	TX
Oregon Public Safety	Monmouth	OR
Palm Beach Co. F.D.	West Palm Beach	FL
Pantex F.D.	Amarillo	TX
Pelham F.D.	Pelham	AL
Philadelphia F.D.	Philadelphia	PA
Pierce Co. F.D.	Gig Harbor	WA
Portland F.D.	Portland	OR
Prattville F.D.	Prattville	AL
Racine F.D.	Racine	WI
Ridgeside F.D.	Cattanooga	TN
Rocky Mount F.D.	Rocky Mount	NC
Rural Metro F.D.	Tucson	AZ
S. Placer F.D.	Granite Bay	CA
Seminole Co. F.D.	Sanford	FL
Sparks F.D.	Sparks	NV
Spokane Co. F.D.	Valleyford	WA
Spokane F.D.	Spoakne	WA
Spokane Valley F.D.	Spokane	WA
St. Joseph F.D.	Saint Joseph	MO
Stuart F.D.	Stuart	FL
Trenton F.D.	Trenton	NJ
Tulare County F.D.	Visalia	CA
U.S. Air Force	Langley AFB	VA
Ventura Co. F.D.	Camarillo	CA
Willoughby Hills F.D.	Willoughby Hills	OH
Wilson F.D.	Wilson	NC
Winter Springs F.D.	Winter Springs	FL