University of Nevada, Reno

**Critical Incident Stress and the Perceived Availability of
Peer Support for Civilian Criminalistics Personnel**

A thesis submitted in partial fulfillment of the requirements for
the degree of Master of Science in Justice Management

by

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We recommend that the thesis
prepared under our supervision by

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MASTER OF JUSTICE MANAGEMENT

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ABSTRACT

The vast majority of police-related stress research has focused upon sworn law enforcement officers and the physical, mental and emotional toll the profession exacts. This study examines the level of critical incident stress experienced by criminalistics personnel and the perception of peer support available to the forensic members of government agencies. Focus was particularly paid to potential differences between sworn and civilian respondents when considering variables of level of stress experienced in the field and in organizational settings. Secondary and tertiary prongs of the research look at the availability of peer support as perceived by sworn and civilian respondents as well as overall satisfaction with elements of the profession.

Data was collected by sending out en electronic survey to 2,028 criminalistics personnel employed with government agencies in 49 states and 33 countries. 337 useable surveys were returned indicating a 20.57% response rate. Analysis reveals findings of a significant level in five areas; field environment, organizational factors, perception of peer support available, sense of personal safety, and overall satisfaction with promotability.

Findings also suggest that the area of study would benefit from additional research of criminalistics personnel and law enforcement agencies in the areas of examination of stress levels experienced by gender, the benefit of diversion and peer support programs and making the programs available to all personnel regardless of sworn status.

SUMMARY – CRITICAL INCIDENT STRESS

German philosopher and author Friedrich Nietzsche wrote, "The man who fights too long against dragons becomes a dragon himself, and if you gaze too long into the abyss, the abyss will gaze into you" (1886). One of the key ideas in Nietzsche's writings was that tragedy is an affirmation of life. The experience of pain and suffering is more than just loss and hurt, it acts in a dual capacity as reminder and as reinforcement of the gain and happiness still presenting themselves as options to those who yet survive.

The consideration and enforcement of this perspective may become obscured for professionals who experience secondhand pain, suffering, and tragedy nearly every day of their working careers. The positive spin encouraged by Nietzsche may become hackneyed, trite, and cliché when one is frequently immersed in the quagmire of trauma, human destruction, and the resulting sorrow. If the idealistic philosophy inferred by Nietzsche is embraced from the start of a career, is it likely that the believer will eventually begin to succumb to stress due to overexposure to the critical incidents which elicit the aforementioned sadness, agony, and strife experienced by others?

The issue of critical incident stress among police officers is a topic well studied in an effort to understand challenges to personal physical and psychological safety and well being, as well as a means to explore methods which can be engaged to maximize these states. While police officers, first responders and emergency medical personnel have been studied extensively for decades, very little research is available on the effects of critical incident and work-related stress upon criminalistics personnel who work side by side with law enforcement officers.

In many law enforcement agencies, there is an established criminalistics unit within the agency that is staffed by civilian forensic personnel. The distinction between criminalists and police officers is their respective level of authority. A sworn police officer is authorized to make an arrest or detain citizens, carries a weapon of deadly force while on duty, and can legally use it if the situation warrants such a level of action. A civilian member of the crime scene unit does not have arrest powers and will not carry a sidearm or other weapon of deadly capability. Some smaller agencies, constrained by budget limitations, utilize sworn police officers as crime scene personnel and do not employ civilian members in this role. In these instances, there is no distinction between the role of police officer and criminalist.

Crime scene investigators and analysts are not only faced with the same traumatic events, gruesome crime scenes, and emotionally charged situations as first line officers and medical personnel, but may spend far greater amounts of time immersed in those stressful conditions. These workers must also handle evidentiary items and be physically interactive with human remains, all related detritus, and other hazardous materials present at many crime scenes. Many times crime scene personnel will still be working at the scene when friends and family members of the victim return. The criminalists are subsequently confronted by the anguish, grief, and frustration expressed by these individuals. The potential for the situation to turn hostile and/or violent is real, and may present a threat of physical harm to the criminalistics professionals on the scene. These civilian personnel do not have the same defensive weapons available to them as do their sworn peers. The threat of danger and emotional toll on criminalistics personnel is real

and it is not clear why it has been underestimated and overlooked in academic and professional research.

SUMMARY – EMPLOYEE ASSISTANCE & SUPPORT

The roles of peer support and employee assistance programs are vital to the management of the mental health of persons affected by many types of stress: on-the-job, organizational, environmental, and countless other incidents and stressors. At times, these stressors may be related to, or compounded by, personal issues. In law enforcement agencies, peer support is primarily focused upon sworn police officers in response to tragic, traumatic, and critical incidents experienced in the line of duty; most often officer involved shootings or the death of a coworker. Although assistance is usually available to all employees – including civilian personnel – the support available for the non-sworn members may be underutilized, and may not be proactively offered to the affected civilian employees. They may not understand that this needed help is not only for law enforcement officers, but is an option for them as well.

In cases of severe stress or a particularly tragic event, an employee can be removed from normal duties and instead be allowed to conduct some legal research, complete administrative tasks or receive job related training for a few days. Although not a regular activity, such alternatives allow the affected employee a period of decompression which can act as a release valve for pent up stress and anxiety.

An additional dimension of the current research involves a brief literature review of the emergence of a new generation into the workplace. As the Generation X and

Millennial populations enter the workforce, new challenges regarding leadership styles, proper management, supervision, training, and employee maintenance – issues felt with the emergence of each new generational cohort – should be addressed on an agency level and potential problems and resolutions identified. In the wake of the popularity of prime-time television crime scene dramas, the influx of applicants into the profession has increased respectively from younger and more diverse applicants (Mennell, 2006). The methods and styles incorporated by management in addressing workplace and employee issues should be examined for fit and effectiveness, and be potentially redefined with policy implications considered.

LITERATURE REVIEW - CRITICAL INCIDENT STRESS

Running directly into a burning building or stepping willingly into a gunfight or hand to hand combat are potential scenarios every day for fire fighters, police officers, security guards, and emergency medical personnel. These are often the mental images one conjures when thinking of these professions. Although the images may be commonplace in the minds of outsiders, these actual incidents are seldom experienced (Brown, Fielding, & Grover, 1999). These first line responders are just that – first on the scene – and are trained to react according to established protocol. This routine procedure will almost always include calling for assistance, or backup, from additional employees deployed to the site and the subsequent delegation of workload and responsibilities when they arrive on scene; many times these delegated employees will include members of the local criminalistics team. The unknown element contained within the first phase of response is gone, but is replaced with a second phase which requires establishing a much

higher level of intimacy with the scene, the victims, and all the potentially gruesome details.

Although these employees are not the first to arrive on the scene and are prepared with a general idea of what they will find upon arrival, they are the chosen employees who are tasked – or burdened – with remaining at and revisiting the scene countless times in order to gather all potential evidence present on site. It can be argued that this immersion in the gruesome conditions and chaos acts as a leveler to the playing field with the first line responders when it comes to facing critical incident stress and defining coping mechanisms related to the job. The opportunity for them to develop compassion fatigue (CF) and experience compassion stress (CS) exponentially increases if they are exposed to surviving victims and/or loved ones of those victims fatally wounded in the event (Sprang, Clark, & Whitt-Woosley, 2007). There is increased opportunity for criminalistics personnel to experience more personal attachment to and physical exhaustion from the event; through longer hours spent seeking justice, more intricate examination of evidence, and psychological evaluation of the scene and the evidentiary elements left behind, etc (Etzion, 1984; Thompson, Kirk, & Brown, 2005).

The term "critical incident" was originally defined in an article published in the Journal of Emergency Medical Services (Mitchell, 1983). Mitchell defines critical incident as "Any situation faced by emergency personnel that causes them to experience unusually strong emotional reactions which have the potential to interfere with their ability to function either at the scene or later." It is generally accepted that a critical incident is an occurrence that is atypical to the usual call for service that puts an

abnormally large amount of strain on personnel (Siegel & Driscoll, 1995). Stress, in studies of this type, is often defined in terms such as some external event or circumstance that is imposed upon a person which elicits to a degree, some amount of emotional and/or physical unease (Brown & Campbell, 1994).

The DSM-IV defines critical incident somewhat differently than Mitchell. Where Mitchell's characterization of critical incident is more global, the DSM-IV criteria limit the experience to include only events that present "actual or threatened death, injury or threat to physical integrity," (to self or a close family member or peer) which elicits a response from the subject to include extreme fear, revulsion and/or helplessness (American Psychiatric Association, 2000).

Since Mitchell's publication, bountiful research has been conducted to further identify and define elemental components of a critical incident, what events or circumstances are most likely associated with such an incident, and the degree to which each incident may adversely affect the well-being of the personnel experiencing it firsthand.

LITERATURE REVIEW – PREVIOUSLY STUDIED POPULATIONS

A study of ambulance workers revealed that a clear distinction was made between critical incidents and "chronic workplace stressors" (Halpern, Gurevich, Schwartz, & Brazeau, 2009). This study identified environmental circumstances frequently present in the workplace which may increase the stress level among workers. These circumstances included the demands of shift work, frustration regarding communication with

administrative staff, and the volume of individual workload, to name only a few of the variables. It was understood by the workers that these workplace stressors may interact in a synergistic manner with critical incident stress, but a clear distinction was made between these workplace stressors and critical incidents experienced in the field. The critical incidents contained in the study of EMTs were identified as any event which elicits uncomfortable emotions to a higher degree than normal, and that do not dissipate quickly. The feelings may also produce an after-effect or secondary result, known as sequelae, which are most frequently associated with sadness or anger.

Utilizing the same organizational focus as Moriarty and Field (1990), a study examining the occupational duties and potentially related stressors was carried out by Brown, Fielding & Grover nine years later (1999). This research was unique as it was one of the few studies at the time that looked beyond the traumatic incidents faced by officers and, instead, focused upon the routine daily tasks and the level of stress these common duties induced. It was determined that an additional component in the processing of events and management of related stress involves exposure to the event (field environment) versus exposure to the victim (organizational environment). The findings in this study also concluded that in sexual assault cases, the proximal exposure to the event elicited different stress responses in the officers working the case than did exposure to the victim. The level of stress indicated is even higher when an officer is exposed to both the event and the victim, especially when the police officer is female. This offers strength to the argument that personal experience, emotions, and degree of empathy affect how an individual will react to and process a particular stressful situation.

A stronger emotional response to an incident may elicit seemingly inappropriate humor from personnel when faced with stressful situations, in an effort to drive focus away from the true emotional impact the event may be having on those responsible for working the scene. One study, centered upon Finnish police officers, looked at the importance of incorporating physical health with a strong sense of humor to counteract critical incident stress and improve well-being in the workplace (Kerkkanen, Kuiper, & Martin, 2004). The results of the research did not find a significant relationship between a sense of humor and good physical health, but found relationships between humor and multiple risk factors. The authors of the study asserted that people with a happier and more care-free disposition may underestimate the risks associated with particular behaviors and habits, resulting in poorer health over time.

The emotional stress presented by a critical incident can have a measurable effect upon more than just the emotional and physical state of the person experiencing the event. A study conducted in 2006 on police officers examined the effect of emotional arousal stemming from a critical incident upon accuracy of recall. It was determined that the completeness and accuracy of a memory was inversely related to the level of violence contained in the incident (Hulse & Memon, 2006). This study did find support for improved recall of the weapon if one was used in the incident, but that the memory of the surrounding events and details outside of the weapon was reduced. This could be treacherous, as the memory and recall of details of the crime scene and related environment by criminalistics personnel are imperative for any legal action which may ensue as a result of their professional involvement with the incident.

In addition to the primary emotional and physical effects of critical incident stress, other research indicates possible complications of a more severe nature. Increased levels of Post Traumatic Stress Disorder (PTSD) resulting from critical incident exposure have been linked to particular professions (Haisch & Meyers, 2004). Individuals working in law enforcement are more likely to experience PTSD complications. These impairments will occur more frequently and on a more severe level among officers between the ages of 25-39 (Anshel, Robertson, & Caputi, 1997), and most common among first year officers (Haisch & Meyers, 2004). This assertion was supported by a participant in a study of emergency medical personnel. One ambulance worker affirmed that a critical incident experienced early in his career affected him to a greater degree because he did not yet feel embraced by the system, and had not been on the job long enough to develop a working support system within the workplace (Halpern, Gurevich, Schwartz, & Brazeau, 2009).

When faced with potential cases of PTSD, an additional contributory element to be considered is the likelihood of burnout. In a study among security guards, the commonality of critical incidents is so high that one in ten security guards may exhibit PTSD symptoms and nearly one in five rated high enough on the Dutch version of the Maslach Burnout Inventory – General Sample (MBI-GS) to indicate the possible presence of burnout (Vanheule, Declercq, Meganck, & Desmet, 2008). The MBI-GS is a self-reporting tool designed to measure emotional exhaustion, cynicism and lack of efficacy. All three of these variables were found to be significantly related to the PTSD symptoms as reported by the Self-Rating Inventory for Post Traumatic Stress Disorder

(SRIP). This study supports the connection between the presence of PTSD and burnout, but that the two conditions have non-overlapping variables (Vanheule, Declercq, Meganck, & Desmet, 2008).

In research bolstering Anshel, Robertson & Caputi's (1997) findings, the relationship between length of time on the job and the degree of susceptibility to this type of impediment is supported by Moran & Britton (1994). They studied Australian volunteer personnel actively engaged in Brushfire Brigade Units and the associations evident between past traumatic events, volunteer experience, and length of emergency volunteer service. They emphasize that the amount of stress exhibited by a subject is inversely correlated to the number of years working as a volunteer officer.

Contrasting the evidence presented by several of the aforementioned studies, some research indicates that immediately upon entering the field of law enforcement a majority of new officers embrace the "Noble Cause" and truly believe their service will make a significant difference to society. When the emotional foundation of the noble cause meets and progresses through the four stages of occupational adjustment (choice, introduction, encounter, and metamorphosis), the reality of the job meets unrealistic expectations and internal stress results (Moriarty & Field, 1990). One possible reason for the opposing findings is the focus upon organizational stress related to work environment and not on critical incident stress experienced in the field. A new officer experiences a weaker sense of personal control over professional expectations and outcomes (Stinchcomb, 2004) and may experience a sense of disenchantment resulting from limited

pay for potentially hazardous work (Gist & Taylor, 2008). These are ingredients which may directly relate to an increase in the amount of stress that he or she experiences.

Individual response to stress can manifest in many ways. Arter (2008) applied qualitative data from police officers to general strain theory, and found a correlation between the level of stress and occurrence of deviant behavior. Although general strain theory looks through a socio-psychological lens and embraces a strong element of subjective interpretation of cultural, personal, and environmental factors, the presence of deviant behavior was linked to the level of stress experienced by the officers in the research. Interpreted, this means that there is a direct relationship between the level of stress attached to a job assignment and the likelihood of deviant behavior. Arter's findings were not limited to deviance on the job. In some cases, a spillover effect was also evident in the family life of the research subjects (2008).

This crossover was addressed in studies which examined acute stress and coping mechanisms among police officers and found correlations among these strategies with psychosomatic symptomology and family-work conflict (Burke R., 1998; Anshel, Robertson & Caputi, 1997). Three stressors were considered: work, disruption of non-work events, and Type-A personality. A positive relationship was evident between all three stressors and work-family conflict and the presence of psychosomatic symptoms. The examination of coping strategies implemented by these subjects identified a greater degree of work-family conflict present in those utilizing escapist coping than in those exercising active coping techniques (Burke R. , 1998). This study bolsters prior research which suggests that while it is clearly evident that the development of coping

mechanisms is common practice; the positive impact and overall efficacy of these strategies, in some instances, is questionable (Cartwright & Cooper, 1996).

Not all studies support the assumption that the stress experienced among law enforcement personnel is higher than other professions. Disputing the claim that police work is among the most stressful of occupations in the world (Anshel, 2000; Zhao, Ne, & Lovrich, 2002) surveyed male police officers using five of the nine dimensions of physical and psychological symptoms of stress as determined by the Brief Symptom Inventory (BSI). They compared the findings from their population with adult, elderly, juvenile, and college aged males and found, surprisingly, that the mean stress levels of male police officers were significantly lower than the elderly, college, and juvenile males in their sample.

Despite the diversity of populations, a plenitude of existing research supports the assertion that when critical events occur, there will most likely be traumatic levels of stress experienced by at least some of the personnel involved. Additionally, there is an abundance of research that supports the assertion that the effects of this stress can manifest and negatively affect sufferers in myriad fashions (Arter, 2008; Declercq, Vanheule, Markey, & Willemsen, 2007; Burke, R. J., 1994; Hulse & Memon, 2006; Gist, 2008; Anshel, Robertson, & Caputi, 1997).

LITERATURE REVIEW – PEER SUPPORT, CRITICAL INCIDENT STRESS MANAGEMENT & DIVERSION PROGRAMS

The role of the typical employee assistance program is to offer a point of contact for personnel who are in need of any type of support and are seeking assistance. Areas of support are not limited to any one genre, and include peer referral agents across a wide spectrum. Financial advice, medical practitioners, psychological guidance, and emotional support are only a few avenues of potential need from any given employee. One motivational factor propelling employees to seek out assistance when needed is the guarantee of privacy and the integrity of anonymity. For purposes of brevity, in this writing the term "peer support" will be used singularly to identify internal assistance offered to personnel by coworkers and/or peers; specifically as a method of helping the subject cope with critical incidents and job related stressors.

The use of role playing and mock emergency scenarios have been practiced for decades to train emergency personnel on what to look out for, how to react, and measures taken to maintain control of – and within – a situation. In the 1950s, St. Elizabeth's Hospital in Washington, D.C. directed this psycho-dramatic style of training to educate police officers on how best to respond to and handle emotionally and mentally disturbed persons (Siegel & Driscoll, 1995). The program flourished for decades and was the subject of several favorable studies praising the effectiveness of the training program and the benefit it provided to the officers involved.

Since Phillips (1984) published additional research pointing out the need for police agencies to properly train officers on stress management and implement employee assistance programs, the emergence of Peer Support Programs (PSP) has become more persistent within law enforcement agencies. Numerous studies have been conducted that

support the benefits of providing peer support to persons experiencing mental anguish and stress. Improvements in overall health, well being, and job performance have been consistently supported. (Johansson & Larsson, 2001; Dowling M.D., et al, 2006). These programs have proven most effective when accompanied by an atmosphere that ensures privacy and reinforces expression of doubts, fears, and anxieties, without the contributor appearing weak or in any way diminished in a personal and/or professional capacity. Incorporating family members and, in some cases supervisors, has aided in the success of the treatment measure (Declercq, Vanheule, Markey, & Willemsen, 2007).

This perceptual element of vulnerability, weakness, and loss of control was addressed in research conducted by Stephens & Long (1999). They compared prior studies of combat veterans and victims of natural disasters with police officers after facing critical stress. The results of their study confirmed that the presence of an emotional and social support system negatively impacted the presence of PTSD symptoms in police officers. The positive effect was greater when the patients felt secure in the anonymity and privacy of the setting and communication conducted during the sessions.

Studies of PSPs have also indicated a degree of isolation experienced by participants which can be reduced when they are made aware of others who have been affected in a similar manner by like circumstances (Patterson, 2008). Sometimes what is more important than knowing the personal experience of stress and subsequent reaction to an event is being kept private, is the knowing that the reaction and difficulty in coping is shared by peers. The reduction in the feelings of isolation, weakness, and vulnerability

faced by participants when exposed to others sharing similar symptoms has frequently been noted (Thompson, Kirk, & Brown, 2005). Understanding that others have experienced the same reactions of fear, uncertainty, stress, anger, sleeplessness, etc., reduces the sense of isolation and builds a feeling of situational companionship between subjects. One study found that social companionship is most strongly linked to lower levels of avoidance and re-experiencing the traumatic event. Additional findings confirmed that social companionship aided in reducing the perception of being burdensome to peers and friends (Declercq, Vanheule, Markey, & Williamsen, 2007).

Critical incident stress management (CISM) was first conceived and developed in the 1980s for American personnel employed in emergency medical services (Mitchell, 1983). Now, more than two and a half decades later, processes related to CISM are mandated by law in some countries. Components of CISM today include crisis intervention methods that are comprehensive, systematic and address both group and individual needs immediately following an incident and after a "cooling off" period has elapsed (Regel, 2007). In addition, most agencies employ practices that facilitate early warning systems and methods to identify other sequelae related to a traumatic or critical event. Regel also describes an offshoot of CISM called Trauma Risk Management (TRiM). TRiM is currently in use by the British Royal Marines. This training was developed for military settings and incorporates all CISM elements and adds psychological debriefing with an emphasis upon risk assessment (Regel, 2007).

A study conducted by Haisch and Meyers (2004) examined the correlation between the work related stress, work related pressure, lack of organizational support,

and related risk of suffering from PTSD. The study examined sworn police officers as well as civilian personnel and found that among all employees there was a higher risk of exhibiting signs of PTSD among those who were exposed to a greater occurrence of stressful incidents and pressure, and who also felt a lack of organizational support from their employing agency. However, the researchers did not differentiate between the sworn and civilian populations in the results of the study so it is unknown if the correlations in the sworn and civilian members were similar or if a significant difference existed.

Some agencies make use of employees by implementing them as peer support agents, while others choose mental health professionals from outside the organization, and some utilize a combination of both (Freeman & Carson, 2007). The role of the agency, when considering social support for personnel, is more integral to the effective coping by the employee than the subjective experience on the individual level. The efforts made by the employer can be more significant to the employee than the personal coping mechanisms and strategies utilized (Halpern, Gurevich, Schwartz, & Brazeau, 2009).

In Halpern et al's study of Emergency Medical Technicians (EMTs) there was significant evidence suggesting the importance of a debriefing or time out period accompanied by support from a supervisor immediately following a critical incident. Additional findings in this research found that the support offered by a supervisor had a positive impact upon the perception of the supervisor by the employee. This held consistent for all types of support whether it was a simple acknowledgement of the event,

a willingness to listen to the employee, or an expression of appreciation for the employee's service and job performance. This research supports the use of internal agency personnel and coworkers more so than outside professionals when considering the strength of the bond between employees and supervisors. This bond may also foster a stronger social network within the workplace, and motivate employees to maximize their efforts in job tasks. In short, the extra efforts expended by supervisors and employing agencies may have a greater impact on the emotional and physical well being of the employee than the support and treatment rendered.

Prior research conducted upon first responders suggests that simple acceptance of a traumatic event may be detrimental to mental improvement, or Post Traumatic Growth (PTG). Research presents evidence that it is necessary to incorporate cognitive appraisal of the situation, circumstances, actions taken and the manner in which the personal worldview has been affected in order for PTG to improve (Chopko & Schwartz, 2009). These findings suggest that having the support of peers to reinforce thoughts and feelings in the wake of an event can bridge the gap between suffering and growth. This can be better achieved by incorporating a strong social network of peers within a PSP implemented by an employer.

Studies have not been confined to public sector employees or the "typical" first line responder. A recent study focused upon employees of Canada Post Corporation (CPC) the Canadian equivalent to the United States Postal Service (Freeman & Carson, 2007). The CPC uses peer referral agents (PRAs) who are employees from all levels of employment trained in interpersonal communication and personal and workplace issue

recognition. These PRAs participated in the 2007 research that focused on the accurate determination of whether an event constituted a "significant event" or a "critical incident" and the appropriate action on the part of the PRA. The results indicate that the increased use of PRAs in the workplace assisted in diffusing additional business incidents and greatly reduced employee dysfunction in the workplace following an "event" or "incident."

Another method of providing an intervention to employees within the workplace to offset potential stress build up is a diversion program. Unlike the paradigm of a diversion program as related to treatment of addicts, juveniles, and repeat criminal offenders, a diversion program as defined in this research involves a routine diversion from normal job tasks by incorporating multiple shifts within a working division to allow for overlapping squads on a particular workday.

This scheduling is currently in use by the criminalistics Division of the Henderson Police Department (Henderson, Nevada). The Crime Scene Analyst Supervisor incorporated this work schedule to allow each of her squads to have one day – called an "in day" – completely removed from the field every two weeks. The active work schedule is presented in Table 1 (all tables presented in the Appendix).

This overlap of personnel allows the squad with the "in-day" to remain in the office and out of the field in order to attend job related training, engage in team building skills, or just get caught up on their paperwork. If all paperwork is completed and up to date, the employee is allowed the day to simply relax and unwind. According to the Crime Scene Analyst Supervisor, since implementing the diversion program, the "free"

day every two weeks has resulted in a significant change in her employees. Simply possessing the knowledge that there is a day looming just ahead to get caught up on work requirements and be removed from the normal field stressors of a job in criminalistics has improved the emotional and mental well being of her personnel as well as positively impacted the overall working environment of the unit.

LITERATURE REVIEW - SUPERVISING DIFFERENT GENERATIONAL COHORTS

The style of personnel management has a strong influence over the success and strength of the supervision exhibited and the loyalty of the supervisees, regardless of the profession or industry. That element involves who, exactly, is being supervised. Consideration of the demographic span of the employee field is essential to all supervisor-employee relations. In terms of mentorship and motivation, a single method of execution does not exist that will be effective across all generational cohorts (Sherman, 2008).

A 2007 study verified that the attributes of leadership which are valued and respected vary between generational cohorts (Sessa, Kabacoff, Deal, & Brown, 2007). A secondary study carried out by the same researchers found that supervisors from each generational cohort acted differently and had distinct styles of leadership behavior. The relationship between supervisors and supervisees is dynamic and influenced by individual personalities, established beliefs, values, and attitudes predominant within each generation. Regardless of the cohort in question, the strength of the "psychological

contract" between delegate and supervisor decreases over time, and must be nurtured if it is to remain intact (DeMeuse, Bergmann, & Lester, 2001).

There are currently four generational cohorts defined, with three of them predominantly active in today's workforce (Baby Boomers, Gen Xers, and Millenials). See Table 2.

The management and supervision styles utilized effectively upon Baby Boomers and the Gen – X workforce will not meet the same success if applied to the emerging Millennial (Also called Gen Why or Gen Y) members of the workforce. This must be considered when revising or designing any sort of assistance program to employees. The new generational cohort will eventually evolve from the minority to the majority, as the Baby Boomers and Gen – Xers obtain retirement eligibility and leave the workplace.

SUMMARY OF RESEARCH PLAN & METHODOLOGICAL APPROACH

A survey questionnaire was created to obtain information from a population of government employees, line personnel and supervisors actively working in a forensic and/or criminalistics position. The survey was reviewed by the University IRB Office of Human Subjects for adherence to established guidelines. Their suggested revisions were incorporated into the final survey instrument.

Individual demographic information and research variables were collected from respondents who answered questions regarding a range of divisional topics. The survey was divided into pages requesting information regarding:

1. Informed Consent & Study Information

2. Critical Incident Stress Defined

3. Agency Information

4. Peer Support Program Defined

5. Diversion Program Defined

6. Organizational Environment

7. Field Environment

8. Personal Experience

9. Demographic Information

Quantitative inquiries were nested next to questions designed to elicit empirical phenomenological information. These questions were coupled with multi-dimensional qualitative questions as well. Questions were designed to elicit information specific to the respondent's perception of critical incident stress, field and working environments and the perceived availability of peer support and diversion programs for criminalistics personnel by their employing agency.

The quantitative questions were designed to capture demographic and situational variables of the respondents including, but not limited to, age, gender, cumulative time spent in the criminalistics profession, level of education, job satisfaction, whether working in criminalistics has changed the respondent personally, etc. These data were used to establish the prevalence of particular characteristics within the population and, if relevant, what effect this information might have on the larger population.

The survey also contained open-ended questions allowing additional input from the respondent. The answers submitted were analyzed to determine if commonly repeated

phrases, descriptions, adjectives, etc., existed on one or both sides of the multiple qualitative divides. Questions of this type included gauging the standard definition of critical incident stress, inquiring how a career in forensic investigation has changed the respondent as a person, degree of study (if college courses have been pursued), the perceived availability of peer support and/or employee assistance available within the respondent's employing agency, and the effectiveness and availability of those existing programs.

Qualitative inquiries were included as a result of having a specific target audience of forensic personnel in governmental agencies. Since the nature of personal experiences within the criminalistics career and perception of available peer support within each agency is strictly subjective, questions requiring an ethnographic analysis were included. The target audience is of a specific genre of personnel so a connection is being sought between several variables within the career field in order to gather information that will further guide the research, rather than simply support or refute the stated hypotheses.

The goal is to obtain a deeper understanding into the potential stress attached to routine job tasks, how strongly these may affect forensic personnel, and the perceived availability of emotional support and individual reinforcement from agency resources and programs available to all employees. The survey questions allow the respondent to reply in a manner that is more emotionally germane and personal. Additionally, feedback received from this research will be reviewed for new ideas, and referenced in the consideration of alternative approaches to training, program design, proactive support,

mandatory involvement in social support activities, implementation of diversionary

programs, etc., for maximized benefit to criminalistics personnel and supervisors.

HYPOTHESES

The focus and hypotheses of this study were dual-pronged. It was expected that

research would show the levels of field environment and organizational related stress

experienced by civilian criminalistics personnel are at least equal to the stress

experienced by sworn law enforcement criminalists. It was also anticipated that civilian

respondents would perceive that their agency's peer support program is more readily

available to, or designed toward, sworn members of their employing agency.

RESULTS - DEMOGRAPHICS

To gather the empirical data relevant to the focus of this research, a sample was

identified consisting of 2,028 persons in 49 states and 33 countries currently employed in

a criminalistics capacity. The Principal Investigator's employing agency is a member of

the International Association for Investigation (IAI). The IAI is the world's oldest and

largest forensic science and identification association, founded as the International

Association for Criminal Identification in 1915. The Association has participating

divisions and regions throughout 50 States and territories and in 69 countries from around

the world. The publicized contact information, including email, is optional in the

Association's directory and membership list - which is available to all IAI members.

Additional emails were retrieved from the attendance roster obtained at the

Continuing Education for Forensic Professionals conference which took place in Las

Vegas, June 15-20, 2009. The conference was sponsored by the National Institute of Justice and West Virginia University Forensic Science Initiative. The class roster, with all contact information, was supplied to all attendees. A single comprehensive list of electronic contact information was compiled from these two sources.

Of the 2,028 links to the survey sent, 390 emails bounced or were undeliverable, reducing the number of potential responses to 1,638. Of this comprehensive total, 337 surveys were returned with at least a portion of the questions answered (a response rate of 20.57%) and 290 were submitted with all questions answered equaling a completion rate of 17.7%. As a result of the majority of the questions being optional, the sample size for each question fluctuates and all 337 are considered in certain analyses.

A reminder message was sent out 11 days after the initial email to all who had not yet responded or opted out of the survey. The survey was open for 22 days in total. All but two questions in the survey were optional with the exceptions being the implied consent agreement and the qualifying question that determined if respondents were, at the time of the survey, currently employed in a criminalistics capacity with a government agency.

Many of the questions required a response in a numerical format. All responses to this type of question that were not in the correct format were reduced to the lowest number or removed entirely. For example, if a respondent answered "100s" when asked how many times a particular scene had been worked, the "s" was dropped and the value of 100 was kept. If a range was given, 50-100, the lowest number was kept. A response of "several" or "too many to recall" was eliminated altogether. Any possible skewing as a

result of this revision will not present itself on the higher (or stronger) end of any correlation.

Of the 290 completed surveys returned, 124 were completed by males (42.76%), 148 by females (51.03%) and 18 (6.21%) respondents did not answer the gender question. The response rates for sworn law enforcement and civilian personnel were 70 sworn (24.14%), 201 civilians (69.31); 19 persons (6.55%) did not provide this information. See Table 3.

Regarding education level, exactly half of the sample had obtained a Bachelor's degree with a combined 22.42% not answering the question or not having pursued higher education. An optional text response was offered for those who had pursued higher education to elaborate upon their field of study. Of the 227 respondents who provided information on their focus of study, 86 (37.9%) had pursued a degree in Criminal Justice or Criminology and 58 (25.5%) studied Criminalistics or Forensic Sciences. For those participants who had already obtained a degree, they were asked the year they obtained their highest degree. 232 responses were received with a mean graduating year of 1996 and a range from a minimum of 1965 to a maximum of 2010.

The generational cohort most strongly represented in the sample was Gen Xers. A total of 160 respondents (55.17%) were born within the parameters of this cohort. Of the other respondents who answered this question 28% were Baby Boomers and 9% Millennials. The average age of respondents was 40.6 years, with a median of 40 and a mode of 30. The age range of respondents who responded to the question of age was 24-42.

Other data gathered include the cumulative years spent working in the criminalistics field. Of the 272 responses to this question, the average time employed in a forensic capacity was just under 12 years (11.97), with a range of 1 year to 41 years active in the career.

Another variable considered in the demographic analysis was the population of the jurisdiction served by the respondent's employing agency. The range of this demographic was extremely large, from a small jurisdiction of 65 citizens to major jurisdictional area of 24,700,000; with an average sample population served being 1,008,815. The reason for this tremendous difference can be attributed to the diverse array of employing agencies. The government entities comprising the complete population contacted ran the gamut from small municipal organizations to statewide agencies. The average number of criminalistics personnel employed within the sample forensic units was 18.5 ($n = 299$) with a minimum of one and a maximum of 400.

Additional demographic details gathered included information concerning the size of the criminalistics unit and accreditation status of the agency and crime lab. 299 responses were given to the question regarding the number of forensics positions within each criminalistics unit. The mean number of criminalistics employees per forensic unit as represented in this study was 18.5 with a median of 9 and a range of 399 (1 – 400).

Two types of accreditation status were determined, the first through the Commission on Accreditation for Law Enforcement Agencies (CALEA) and the second via the American Society of Crime Lab Directors (ASCLD). CALEA accreditation considers the agency as a whole, and ASCLD focuses solely upon criminalistics

standards and practices. Of the 297 responses to the question of agency accreditation through CALEA, 154 (51.8%) were currently accredited. Since ASCLD accreditation requires a criminalistics laboratory, the question applied to only those agencies with a working crime lab. Of the 200 responses to the ASCLD inquiry, 107 (53.5%) were accredited.

The primary job assignment of the respondents was categorized into four areas to include working in the field, in the laboratory, equally in the field and laboratory and other. A total of 272 responses revealed that 40.4% (110) worked primarily in the field, 8.1% (22) worked mostly in the laboratory, 37.1% (101) spent equal amounts of time working in the field and in the laboratory and 14.3% (39) fit into the "other" category. An optional text response was offered to the respondents fitting into the final category. Of those who provided additional information on their primary duties, many were supervisors of the unit fulfilling administrative functions or worked crime scenes as a secondary task in addition to regular law enforcement duties.

The division between line personnel and supervisory staff was also determined. Of 253 responses to the question to determine supervisory level, 66.8% (169) did not work in a supervisory capacity, and 33.2% (84) were currently in charge of supervising at least one other person. Descriptive statistics were run on this data and the average number of direct reports was 6.7 per supervisor. The minimum was one and the maximum was 35 (range = 34).

FINDINGS & ANALYSIS

FIELD & ORGANIZATIONAL ENVIRONMENTS

Respondents were presented with multiple field scenarios and environmental circumstances and were asked to rate the level of stress typically experienced by them in each circumstance. A list of 20 total field environments and 15 organizational factors were identified that could be linked to the occurrence of critical incident stress (field) and environmental stress (organizational) in criminalistics personnel. The responses were ranked on a Likert Scale with the value of one (1) equating no stress at all and five (5) being equal to extreme stress typically associated with the specific field environment. The results of the field and organizational environments and related stress rates were examined using multiple techniques, to include regression analysis, t-test analysis for a difference in two means, one way ANOVA and Chi Square testing, depending upon total variables included in the particular analysis.

The overall average stress rate of all respondents for all field environments combined was 3.45, midway between neutral or no stress and moderate stress. The field environment with the highest average stress rating was the death of an officer in the field. The variable with the lowest reported average stress rating was domestic battery. The complete list of field stressors and the average response (all respondents) for each is identified in Table 4.

The results of the average response rating for each field stressor mirrored other studies conducted with law enforcement personnel, with the death of an officer in the

field and officer involved shooting ranking in the top three stress inducing field environments.

A comparison of the average response to overall field environment stress rating and the top six stressful field environments between civilian and sworn personnel reveals no significant difference between the overall average field environment stress rating experienced by civilian and sworn personnel (see Table 5). The same is true for the average stress experienced in the top five ranking environments. However, there is an extremely significant difference (alpha level of .01 and p-Value of .005) in the average amount of stress experienced at high profile scenes with civilian personnel ranking much higher than their sworn counterparts.

The same analysis was conducted with organizational stressors. The overall average stress rate for all organizational factors combined was 3.13, bordering upon neutral or no stress. Two of the questions isolated sworn and civilian personnel; the remaining grouped all respondents regardless of sworn status. The universal organizational factor with the highest average stress rating was the budget cuts and restraints. The universal organizational factor with the lowest reported average stress rating was work environment. Of the two factors isolating sworn status, the one posed to sworn personnel – lack of respect from other officers – ranked absolute lowest with an average stress rate of 2.79. The complete list of environmental factors and the average response (all respondents) for each is identified in Table 6.

A comparison of the response average to the overall organizational environment stress rating between civilian and sworn personnel reveals no significant difference

between the two populations (alpha .01, p-value .06). The top three organizational factors related to the occurrence of stress were also analyzed comparing civilian and sworn respondents. The average stress experienced by the two groups as related to lack of personnel was not significant. The same result was found when considering the salary and benefits factor; however the p-value returned was .054 with a confidence level of 99%, suggesting that stress was higher among civilian criminalists.

There was a significant difference found in the average stress experienced by the two groups in relation to budget cuts and restraints. The civilian respondents reported a much higher stress level than the sworn respondents (p-value .020). The mean stress rates for all organizational factors as reported by civilian and sworn personnel are listed in Table 7.

The field and organizational factors and the related stress elicited by each were compared against the different ages and generations of persons responding to the survey. The age of all respondents was categorized into their generational cohort and each cohort assigned a number; Millennial – 1, Gen Xer – 2 and Baby Boomer – 3. Traditionalists were not represented in the complete responses received. In regard to field environments, Chi Square analysis revealed a very small negative correlation, indicating that as the person gets older, the stress level related to field environments reduces slightly. This correlation was found among both civilian ($r = -.128$) and sworn ($r = -.129$) respondents. This result is based upon age and not on years of experience working in forensics.

When years of experience in criminalistics was considered, there was an extremely small negative correlation between years of experience and average field

environment stress (-.03) and organizational stress (-.059). However minimal, these findings support the research conducted by Anshel, Robertson & Caputi (1997) who determined that after nine years on the job, police officers tended to perceive stressful events as less threatening and more challenging.

The analysis revealed similar results when conducted for the average stress related to organizational factors. Like the field environment result, no significant relationship was found between generational cohort and organizational related stress rates. There was one interesting, but statistically insignificant difference: whereas the correlation for age and organizational factors among civilian personnel was very similar (r = -.143) to the result found for field environment, the result for sworn personnel was very different (r = +.207) from the field environment result. The rate of stress resulting from organizational factors experienced by sworn personnel showed a minor increase as age advanced.

These results contradict Anshel, Robertson & Caputi's (1997) findings which indicated a higher level of stress among rookie officers and employees within the range of 25-39 years of age. Also contradicted is previous support for a reverse correlation between an average stress rating and years experience on the job (Moran & Britton, 1994). The results of this study showed a very weak correlation between average stress rating and years working in forensics.

Additional correlation analyses were conducted upon all field environment responses considering years in the Criminalistics profession (using the average of 12 years on the job as the division between populations), jurisdictional size, educational

level, and approximate number of times worked at each type of environment, but no clearly defined relationships between any of the variables were indicated.

PEER SUPPORT PROGRAMS

The respondents were asked if their employing agency had a Peer Support Program (PSP) currently in place and available for criminalistics personnel. Of the 301 respondents who answered the question, 183 (60.8%) stated yes and 118 (39.2%) stated no. A two-tailed t-test was conducted using the average stress response rate for the top five stress-related field environments against the presence or absence of an active PSP, and no significant difference between any of the sample means was indicated.

Respondents were asked how well they felt their employing agency trains criminalistics employees on the management of critical incident stress on a scale of one to five (1 = Meets employee needs very well – 5 = Does not meet employee needs at all). The results showed that the respondents working in agencies that have an active PSP have significantly higher average opinions on the effectiveness in which their employer trains them (3.49) compared to the employees working in agencies that do not have an active PSP in place (3.97) (Alpha = .01, p-Value .0002).

Of the questions related to the aspects specific to the PSP, only the responses from the respondents who answered yes to the presence of a PSP were included in the analysis listed in Table 8.

The perception of availability of existing PSPs was examined by grouping the responses of civilian and sworn status respondents. A two-tail t-test (alpha .01) was

conducted on the average responses for both samples, and the result fell on the cusp of the scientifically accepted significance range (.056) indicating that civilian members are more inclined to believe that their agency's PSP is not as readily available to all personnel.

EFFECT OF CRIMINALISTICS CAREER ON BEHAVIOR, PERSONAL OPINION & SATISFACTION

Several questions were included in the research tool that asked the respondent how working in criminalistics had changed them. One of the questions asked if any personal coping mechanisms had been created in order to occasionally "turn thoughts off." A total of 271 responses were given with 239 (88.2%) stating yes and 32 (11.8%) claiming that no personal coping mechanisms had been created. The second broadly phrased question asked if the respondent felt that the experience of working in forensics had changed them personally. 271 responses were also provided to this question with a dominating 97% (263) responding that yes, they had somehow been personally affected by their career in forensics.

Five additional questions were asked regarding the manner in which the career has effected personal change. The analysis for these questions, once again, grouped civilian and sworn respondents into two samples. Two-tailed t-tests for a difference in sample means were conducted on the responses to the five questions. Analysis was limited to the responses of those persons who answered affirmatively to being somehow affected by their career choice.

Analysis of four of the questions did not return a significant result, with the responses from sworn criminalists being slightly more negative for three of them. One question, which asked about the change in view of personal safety, did find a significant result. Civilian responses to this question were significantly higher (3.59%) than the responses from sworn personnel (3.07%) indicating that civilians have a significantly more negative view of their personal safety than do their sworn peers.

The issue of personal satisfaction was also addressed in the survey. Four specific Likert scaled questions were asked, two of the questions pertained to satisfaction levels concerning specific work related issues. One addressed satisfaction as related to the possibility of job promotion and one for overall job satisfaction. Of the four questions, the one ranking the highest in satisfaction level was the overall satisfaction with the job which ranked barely below "somewhat satisfied" at 1.98 ($n = 273$). See Table 11.

Analysis of the responses to these questions across the civilian and sworn dividing line presented only one result which ranked within the range of significance. The satisfaction levels regarding promotability between sworn and civilian personnel were significantly different, with civilian respondents being much more dissatisfied with the possibility of promotion from their current positions. Very little difference was evident between civilian and sworn respondents on the other three questions relating to satisfaction.

Respondents were asked to rate their awareness and understanding of agency management of critical incident stress offered to personnel. Of 289 total responses, 154

(53.3%) stated that management of CIS was not offered by their agency and 56 (19.4%) stated they did not know how or if their agency managed CIS.

The presence of a diversion program was indicated by only 33 respondents, with 18 stating they did not know if there was such a program in use in their workplace.

OPEN ENDED QUESTIONS

Several open-ended questions were added to the survey for additional input from respondents who wanted to elaborate on particular issues. An ethnographic content analysis of these responses required iterative examination and a categorization of specific text based on recurrent issues and/or themes.

Several questions were presented in this format, however only two provided useful data. The analysis of one of the questions, "Add optional input regarding your agency's PSP" was limited by a filter which included only the responses that came from civilian respondents who indicated that a PSP was operating within their workplace. Forty-seven responses were given, but 12 of these only stated that the respondent had never used the program, therefore could not offer input. Of the 35 remaining responses, 14 of these contained the issue that the PSP was not available to them and/or that peers (civilian and/or forensic personnel) were not a part of the support group. The second most prevalent theme was that the program was not advertised or participation was not encouraged. Several responses included the statements that people who sought assistance were thought of as weak, looked down upon by supervisors, or that it would hurt their career.

The second question providing insightful responses asked the respondents to elaborate on how a career in forensics has changed them. This question elicited many more responses with 139 respondents adding personal insight. Seven recurring themes were identified, five which indicated a negative impact, two themes indicating a positive impact.

DISCUSSION

Analysis revealed findings of a significant level in five areas; field environment, organizational factors, perception of peer support available, sense of personal safety, and overall satisfaction with promotability.

The analysis of the top six field environments contributing to the stress levels of the study population shows that the civilian respondents experienced at least as much stress as their sworn peers in five of the six variables. A significantly higher level of stress is experienced on high profile cases by civilian personnel when compared to sworn officers. This supports the first prong of the stated hypothesis which accurately predicted that civilian personnel would experience at least as much stress as forensic personnel who are sworn police officers. This degree of difference may be related to limited media relations and public speaking training offered to civilian members of police organizations.

The only field environment variable in which the average civilian stress rate was lower than the sworn stress rate was in addressing the death of an officer in the line of duty. The higher average stress rate among sworn respondents may be related to the

"brotherhood" shared by sworn law enforcement officers. Losing a peer and co-worker is stressful to most employees; however the additional layer of kinship among police officers may contribute to the higher degree of potential stress as a result of the loss of an officer.

For the top organizational factors related to stress, the average stress rate of civilians in comparison to sworn respondents was higher with all three variables. In one of these, the variable concerning budget cuts and restraints, the difference was significant with civilians experiencing much more stress than their sworn counterparts. This could be due in part to the civilian status of their position. A sworn law enforcement officer acting in a forensic capacity can usually be reassigned to active patrol if economic setbacks require layoffs or mandatory vacancies in non-essential positions. A sworn position is more protected from layoffs or a reduction in force as the result of being a public safety officer. Civilian positions, by comparison, are not deemed as essential and may therefore be perceived as less protected.

The second hypothesis was also supported. The number of civilians who answered yes to having a PSP available to criminalistics personnel was 123. Of these, 49 stated that they felt the program was more available to sworn peers or not readily available to anyone. This sample represents 39.8% of civilian respondents.

A more significant result is evident when a t-test analysis of the average response rate across the two separate groups is considered. The average rate of the civilians is significantly lower from the sworn respondents, indicating that the civilians do not feel that their agency's PSP was readily available to all employees. The exclusion of civilian

personnel from PSP involvement can be inferred by this result, but poor question design rules out any definitive support of this prong of the research hypothesis.

An area of concern is the percentage of "not offered" and "I do not know" responses to the question of whether or not the respondent's employing agency had a PSP in place and how well their agency addressed the training of employees on critical incident stress. Of all responses other than "yes" to the presence of a PSP returned, 29.4% of the respondents ($n = 63$) gave a "Do not know" response to whether or not a PSP existed in their place of work. As for how well the employers trained personnel on critical incident stress, 72.6% stated that no training was offered or they did not know (53% and 19%, respectively).

The majority of responses indicating a lack of awareness of a PSP make a strong argument for increasing the visibility of the support available for personnel in times of need and stress. Keeping it "under the rug" will only add to the stigma attached to indulging in the services available.

These research data suggest that peer support be presented in a different manner within law enforcement agencies. One example might be changing the moniker from employee "support" or "assistance" program to an employee "wellness" plan. This is a simplified example, but describes the intention. If employees have the perception that participation in the program somehow diminishes their professional credibility or self-worth, it is easy to speculate that voluntary participation levels will be minimal. This number would likely diminish even further if the employee believes that participation will be known by coworkers and supervisors. Changing the overall perception of the

program, and clearly defining the intention is only one step in creating an effective

program that will be of maximum benefit to the most potential attendees.

Another important element of participation in agency peer support programs is the

voluntary involvement enacted by the majority of agencies represented in this research.

In police related scenarios, making involvement mandatory may possibly be the best

practice to follow. Waiting until after a critical incident occurs or, even longer, when

outward signs are evident may be far too late to save the integrity of an employee's

mental health (Moriarty & Field, 1990). Mandating one-on-one sessions or other

interaction with the appropriate medical personnel may well identify a psychological

vulnerability long before it manifests outwardly and/or affects job performance and

behavior. Active involvement by a supervisor in employee well being and health has been

shown to be a contributory factor to the overall improvement and strengthening of the

peer to supervisor relationship (Halpern, Gurevich, Schwartz, & Brazeau, 2009). Their

research suggests that a supervisee's perception of a supervisor is positively affected, and

the social network is fostered when a supervisor offers his or her support to designees.

Adding particulars to the voluntary participation such as using outside

professionals and volunteer retirees from like careers, introducing the option of a signed

non-disclosure agreement by both parties, or offering to conduct the support services in

the place of the employees choosing – somewhere outside the workplace – are only a few

ideas that could be added to a PSP to make it more attractive to a larger number of

people.

Civilian respondents also scored significantly different than sworn personnel when rating their sense of personal safety. Since beginning a career in criminalistics, the civilian members have a significantly more negative sense of personal safety than sworn officers. This may be due in part to the fact that civilian employees are not issued the same weapons or endure the same level of defensive tactics training as sworn members. They work side by side with their sworn peers in the same environment, facing the same dangers, but with a lesser ability to defend themselves.

An additional set of results was found in relation to satisfaction with the possibility of promotion from current position held. Civilian members were much less satisfied than sworn respondents in this outlook. This might be related to the diversity attached to a sworn police officer position that is not also afforded the civilian forensic employee. A sworn officer can be transferred to a different unit or division and resume different police-related job tasks. Civilian forensic personnel do not have the same latitude within their positions.

As supported in the literature review, the occurrence of a true "critical incident" is not commonplace for first responders. The majority of time spent on the clock is doing routine tasks. However, in the job of crime scene analysts and forensic specialists, the routine tasks are redefined and more often than not include scenes of violence, human death, and destruction. An officer responding to a call of domestic violence who arrives to find a murder-suicide scene can make the call to dispatch, a supervisor and the coroner's office and secure the scene – from outside the residence – until forensic personnel arrive.

The work facing the criminalists once on the scene involves physical interaction with the deceased, evidence collection of countless samples of blood and other bodily detritus, absorbing the scene for hours with all senses; seeing it, touching it, smelling it, etc. The interaction endured on a daily basis by these professionals places them more intimately in the potential grasp of the effects of critical incident stress.

LIMITATIONS

This research was reliant upon self-report measures that may cause common method variance which, in turn, may skew correlations higher. The impact of this bias, if one exists, is less evident in the independent than the dependant variables. The seriousness of this type of systematic bias is greatly debated, and may not diminish the validity of the research significantly. This possible bias could be refuted by future research which incorporates a greater depth of objective measures, such as job performance, individual accuracy of investigative conclusions and findings, successful prosecutions, participation in peer support activities, etc.

A limitation inherent to this research tool is the dependence upon retrospective recall and self-reporting to accurately convey the respondent's prior emotional state and level of stress experienced in any particular type of event relating to field environment. Stress is a subjective experience and the admission of falling prey to it may be diminished or exaggerated in the recall. Admitting to feeling stressed out over an event may seem ineffable for some working in a law enforcement agency. Outwardly exhibiting any trait that may be judged as weak or irresponsible is predominantly unacceptable to law enforcement personnel (Anshel, Robertson, & Caputi, 1997). This

viewpoint is also reinforced by Larsson, Kempe & Starrin (1988) who assert that one of the highest priorities of law enforcement officers is maintaining social desirability. In regard to organizational factors impacting stress levels, the diversity of the agencies and size of jurisdiction in the study population present a large spectrum of potential work environments varying greatly in many aspects.

The response rate to the survey was 20.57%. However the size of the population contacted was large enough that this response rate provided a good sample size ($n=337$). Another factor to always be considered is the issue of nonparticipation bias. This type of skewing is addressed by Martinussen, Richardsen & Burke (2007) citing Sogaard et al., (2004), and Vink et al., (2004), who suggest that the potential impact of this bias upon variable associations and estimated prevalence is nil by stating, "in studies with moderate response rates the data collected on health issues are relatively unbiased." The response rate of this research is strong enough to consider greatly reducing the possibility nonparticipation bias.

An additional factor to consider when examining the results of the study is the reliance upon currently employed personnel to relate the state of the working environment. The sample did not include any employees who had severed employment with the participating law enforcement agencies under any possible circumstances. Limiting the survey to currently employed personnel eliminated any "outsider" bias, but also eliminated many years worth of potentially valuable experience and worthwhile input from retired veterans of the career field.

IMPLICATIONS FOR ADDITIONAL STUDY

The high percentage of people in this study implementing coping strategies indicates a potential area of additional scrutiny. Contrary to the opinion of Carver (1996), who asserts that the amount of research on coping mechanisms is already "unmanageable," there is not a clear understanding of how well these individual methods of emotional compartmentalization are working. The actual role played by coping mechanisms is unclear, as is any method employed to maximize their benefit (Burke R. , 1998).

Another topic in this study worthy of further research is the difference found between genders. Although not a focus of the current research, brief analysis indicates that females rated higher average stress levels than males in 14 of the 15 organizational factors and 19 of the 20 field environments included in the current research. Further analysis should be conducted to see if this trend is evident in both the civilian and sworn respondents, and if there is a significant difference between the two groups. Several existing studies on sworn female police officers indicate that females are considered more vulnerable to work-related stress than males (Etzion, 1984) and that said stress has a greater impact on family relationships (Thompson, Kirk, & Brown, 2005).

The benefit of diversion programs within the workplace is also an area to consider for additional investigation. The current study yielded only 28 respondents who indicated that a diversion program was used in their workplace. The concept of a non-punitive "timeout" parallels the idea posed in this research as a diversionary type of program. This includes a forced time away from the field or certain job responsibilities for a requisite

amount of time; a temporary re-assignment without negative or unwanted consequences. This diverted time away from the normal work environment is meant to allow the employee time to internally process a critical incident, seek any necessary support or assistance, and to allow the opportunity for the employee to extract him or herself from the potential quagmire of continued work in the field.

Ultimately, it is this researcher's desire to see all civilian criminalistics personnel considered for inclusion as high-risk employees recognized by the Heart and Lung Act legislation. This Act, passed in its original form in 1935, provided legal requirement for the employing agency to pay for the medical expenses, full salary, and benefits of law enforcement officers and other public safety personnel, in the case of an injury sustained while on duty. This legislation identified the health risks associated with public safety personnel related to heart disease and/or tuberculosis arising from job-related conditions, to include extreme stress. This Act laid the foundation for all sworn law enforcement officers and firefighters to be separately classified as "high risk" personnel, and subsequently eligible for a higher rate of retirement benefits at the end of their career than their civilian co-workers.

To date Florida is one of the few states that has recognized the burden carried by criminalistics workers, and has allowed them the same "25 and out" privileges provided to law enforcement officers by this act. The act has been extended to corrections personnel in various areas, and it is hopeful that the findings within this research will support extending this legislation to civilian forensic personnel.

Most government agencies employing law enforcement and criminalistics personnel likely have a peer support program in place. However it is possible that there exists a perceived dichotomy concerning which employees the programs are designed to benefit. Participation in these programs is also more than likely presented on a voluntary basis. It can also be suggested that mandated attendance – even on a minimal scale – is a necessary step in increasing awareness of the assistance available for those who need the help but are unaware of its availability. Mandating involvement in the provision of emotional support will eliminate the decision to "opt out" by those personnel who believe they will appear weak or unfit in the eyes of their peers if they seek voluntary participation in the program. It is common for the police officer to be unduly influenced by a degree of "social desirability" which would be greatly compromised by appearing incapable of coping or by displaying vulnerability and weakness (Anshel, Robertson, & Caputi, 1997). Although many criminalistics personnel are not sworn law enforcement officers, being immersed in the law enforcement culture may greatly influence the behavior of the civilian personnel in regard to seeking assistance in the wake of a critical incident.

Criminalistics personnel are immersed in the same trauma and horrific conditions every day – and for far longer periods of time – than their first-responding law enforcement brethren. Long after the scene is secured, cordoned off with crime scene tape, and the police officers have responded to new calls for service, the crime scene personnel are still there processing evidence. They experience a great amount of stress and face a potential risk to personal safety every day on the job. This research is but a

single step in discovering the level of attention that is needed in appropriate care and

safety of criminalistics personnel everywhere.

APPENDIX

Table 1 – Overlapped Scheduling to Allow a "Diversionary Day"

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Days "A"	0600-1600	0600-1600	0600-1600	0600-1600			
Days "B"				0600-1600	0600-1600	0600-1600	0600-1600

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Swings "A"	1400-2400	1400-2400	1400-2400	1400-2400			
Swings "B"				1400-2400	1400-2400	1400-2400	1400-2400

	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
Graves "A"	2200(Sat)-0800	2200-0800	2200-0800	2200-0800			
Graves "B"				2200(Tues)-0800	2200-0800	2200-0800	2200-0800

Table 2 – Current Generational Cohorts

COHORT	BORN	CHARACTERISTICS
Veterans	1923-1943	Have mostly aged out of the workplace
Baby Boomers	1943-1960	Competitive Work well in teams and in coaching others Put the job first and have a strong work ethic Patient, prefer long-term efforts and goals Prefer public recognition (award, parking spot)
Gen Xers	1960-1980	Extremely independent, will create new methods Autonomous, self-motivated & prefer to work alone

		Need stimulation; work must be entertaining and fun
		Proficient in technology, motivated by job-related training
		Prefer personal, private recognition (compensation, day off)
Millenials	1980-2000	Family and friend oriented
		Require technological interaction: email, web, social network
		Work best with strong supervisor relationships; need continued positive reinforcement
		Work well with others and like to learn the wisdom of "elders"
		Prefer clearly defined goals with instant gratification

Table 3 – Respondent Demographic Information

Total Completed Surveys = 290		*N*	% of Total
Gender	Males	124	42.8%
	Females	148	51%
	Did Not Answer	18	6.2%
Sworn **Status**	Sworn	70	24.1%
	Civilian	201	69.3%
	Did Not Answer	19	6.6%
Gender and Sworn **Status**	Male Sworn	51	17.6%
	Male Civilian	73	25.2%
	Female Sworn	19	6.6%
	Female Civilian	128	44.1%
	Did Not Answer	19	6.6%
Education **Level**	No College Degree	47	16.2%
	Associates Degree	34	11.7%
	Bachelors Degree	145	50%

	Masters Degree	44	15.2%
	PhD	2	.7%
	Did Not Answer	18	6.2%
Generational Cohort	Baby Boomer	82	28.3%
	Gen Xer	160	55.2%
	Millennial	27	9.3%
	Did Not Answer	21	7.2%

Table 4 – Overall Average Stress Rating for Field Environments – All Respondents

Overall average stress rate for all field environments			*n* = 271	Ave. = 3.45	
Variable	**N**	**Ave. Stress**	**Variable**	**n**	**Ave. Stress**
Death of an Officer in the Field	267	4.59	Abuse/Neglect of Elderly	266	3.42
Mass Fatalities	266	4.10	Known Victim or Suspect	263	3.37
Officer Involved Shooting	269	4.07	Family Members at Scenes	267	3.36
Exposure to Infectious Disease	264	3.84	Homicide / Suicide	265	3.30
Infant Death	269	3.84	Self Protection While on Scene	266	3.03
High Profile Cases	269	3.81	Abuse/Neglect of Animals	266	2.87
Drowning of a Child	267	3.73	Having Other Agencies on Scene	268	2.81
Abuse/Neglect of Children	268	3.71	Sexual Assault	268	2.74
Exposure to Hazardous Materials	262	3.67	Weather Conditions	268	2.73
Pressure to "Wrap Up" a Scene	268	3.44	Domestic Battery	267	2.50

Table 5 – Average Stress Rating for Field Environment – Civilian and Sworn Personnel

Civilian Personnel			**Sworn Personnel**		
Variable	**n**	**Ave.**	**Variable**	**n**	**Ave**

Ave. of ALL Field Stress Rates	201	3.50	Ave. of ALL Field Stress Rates	70	3.32
Death of an Officer in the Field	199	4.55	Death of an Officer in the Field	68	4.71
Mass Fatalities	198	4.16	Mass Fatalities	68	3.94
Officer Involved Shooting	200	4.06	Officer Involved Shooting	69	4.09
Exposure to Infectious Disease	196	3.91	Exposure to Infectious Disease	68	3.68
Infant Death	200	3.86	Infant Death	69	3.86
High Profile Cases	199	**3.93	High Profile Cases	70	**3.49

**Indicates a significant (p <.01) difference

Table 6 - Overall Average Stress Rating for Organizational Factors – All Respondents

Overall average stress rate for all organizational factors		$n = 271$	Ave. = 3.13		
Variable	***n***	**Ave. Stress**	**Variable**	***n***	**Ave. Stress**
Budget Cuts & Restraints	240	3.88	Resistance to Change (Court cases & laws requiring new training, skills, etc)	232	3.18
Salary & Benefits (parity, cutbacks, etc.)	244	3.78	If Civilian – Lack of Respect from Officers & Admin	218	3.15
Lack of Personnel	244	3.68	Lack of Leadership	241	3.05
Call Out (interrupted personal time, lack of sleep)	238	3.54	Overtime	233	2.96
Complacency of Colleagues	236	3.38	Lack of Equipment & Supplies	240	2.90
Lack of Support	231	3.34	Work Environment (shared space, ventilation, etc.)	236	2.87
Unrecognized Need (by Admin) for Continued Education & Training	230	3.21	If Sworn – Lack of Respect from Other Officers	172	2.80
Lack of Understanding of the Need for Mental & Emotional	229	3.19			

Support					

Table 7 - Average Stress Rating for Organizational Factors – Civilian and Sworn Personnel

Civilian Personnel			Sworn Personnel		
Variable	**n**	**Ave.**	**Variable**	**n**	**Ave**
Ave. of ALL Organizational Stress Rates	**201**	**3.31**	**Ave. of ALL Organizational Stress Rates**	**70**	**3.11**
Budget Cuts & Restraints	180	*3.97	Budget Cuts & Restraints	60	*3.58
Salary & Benefits (parity, cutbacks, etc.)	184	3.87	Salary & Benefits (parity, cutbacks, etc.)	60	3.52
Lack of Personnel	182	3.75	Lack of Personnel	62	3.48

*Indicates a significant (p <.05) difference

Table 8 – Effectiveness of Agency Peer Support Program

1=Agree strongly, 2=Agree somewhat, 3=Neutral, 4=Disagree somewhat, 5=disagree strongly		
Variable	**n**	**Average Rating**
Your agency's Peer Support Program: Is beneficial to all who participate	180	2.26
Your agency's Peer Support Program: Needs to be promoted more (so employees are aware of available support	179	2.08
Your agency's Peer Support Program: Availability and content need to be improved	179	2.55

Table 9 – Effectiveness of Agency Peer Support Program – Civilian and Sworn Personnel

1=Agree strongly, 2=Agree somewhat, 3=Neutral, 4=Disagree somewhat, 5=disagree strongly					
Civilian Personnel			**Sworn Personnel**		
Variable	**N**	**Ave.**	**Variable**	**N**	**Ave.**
Your Peer Support Program is readily available to all employees	124	*2.13	Your Peer Support Program is readily available to all employees	41	*1.75
Your agency's Peer Support Program: Needs to be promoted more (so employees are aware of available support			Your agency's Peer Support Program: Needs to be promoted more (so employees are aware of available support		
Your agency's Peer Support Program: Availability and content need to be improved			Your agency's Peer Support Program: Availability and content need to be improved		

*p-Value = .056

Table 10 – How Criminalistics Has Affected You – Civilian and Sworn Personnel

1=Much more positive, 2=Somewhat more positive, 3=Neutral, 4=Somewhat more negative, 5=Much more negative					
Civilian Personnel			**Sworn Personnel**		
Variable	**N**	**Ave.**	**Variable**	**n**	**Ave**
Change in your opinion and view of others	123	4.10	Change in your opinion and view of others	41	4.02
Change in your opinion and view of the legal system	123	3.89	Change in your opinion and view of the legal system	41	3.93
Change in your opinion and view of personal relationships	121	3.17	Change in your opinion and view of personal relationships	41	3.37

Change in your sense of personal safety	123	*3.59	Change in your sense of personal safety	41	*3.07
Change in your attention to detail	123	1.38	Change in your attention to detail	41	1.54

*Significant at .05 (p-Value = .017)

Table 11 – Overall Satisfaction – All Respondents

1= Very Satisfied, 2= Somewhat Satisfied, 3= Neutral, 4= Somewhat Unsatisfied, 5= Very Unsatisfied		
Variable	**n**	**Average Rating**
Level of Satisfaction with Job	273	1.98
Level of Satisfaction with Available Resources	273	2.73
Level of Satisfaction with Job Related Training Opportunities	273	2.93
Level of Satisfaction with Promotability	272	3.69

Table 12 – Overall Satisfaction – Civilian and Sworn Personnel

1= Very Satisfied, 2= Somewhat Satisfied, 3= Neutral, 4= Somewhat Unsatisfied, 5= Very Unsatisfied					
Civilian Personnel			**Sworn Personnel**		
Variable	**N**	**Ave.**	**Variable**	**n**	**Ave**
Ave. of ALL Satisfaction Rates	**201**	**2.86**	**Ave. of ALL Satisfaction Rates**	**70**	**2.71**
Level of Satisfaction with Job	201	1.99	Level of Satisfaction with Job	70	1.99
Level of Satisfaction with Available Resources	201	2.71	Level of Satisfaction with Available Resources	70	2.79

Level of Satisfaction with Job Related Training Opportunities	201	2.99	Level of Satisfaction with Job Related Training Opportunities	70	2.77
Level of Satisfaction with Promotability	200	*3.82	Level of Satisfaction with Promotability	70	*3.3

*Significant at .01 (p-Value = .002)

Table 13 – How Criminalistics has Changed You – All Personnel

How has your career in criminalistics changed you?		
Theme	***n***	**% of Response**
Emotional numbness, callousness, more jaded, less empathy & more apathy	41	29.5%
Less personal trust of others, increased anxiety	36	25.9%
More negative, skeptical, cynical and impatient	35	25.2%
Disillusionment in law enforcement & the criminal justice system, disconnect between Administrative and line personnel	21	15%
Changed world view, loss of innocence, more depressed, angry	19	13.7%
Appreciate life, faith, family and friends more	16	11.5%
More aware of personal safety and surroundings, more protective	32	23%

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