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Stress and Burnout Among Cross-Trained Public Safety Personnel

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STRESS AND BURNOUT AMONG CROSS-TRAINED PUBLIC SAFETY PERSONNEL

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This quantitative, correlational study investigated the effectiveness of cross-training as a strategy for reducing burnout and improving job satisfaction among public safety personnel. The research used ANOVA to compare burnout and job satisfaction among police, fire, and emergency medical service (EMS) personnel receiving cross-training with public safety personnel trained only in their functional task specialty. The investigation included assessing the effect of the demographic variables of public safety function, age, gender, years or education, years of experience, marital status and race on burnout and job satisfaction among cross-trained public safety personnel. The sample population for the study consisted of active duty public safety personnel employed on a full-time basis for more than a year in a public safety department in cities with a population of 75,000 or less. The data gathering instrument used in the study was a modified form of the Satisfaction Questionnaire developed by Stamps (1997), which was assessed for reliability and validity in a pilot test. The findings indicated that cross-training produces a statistically significant difference in the level of burnout among public safety personnel, with cross-trained personnel reporting lower incidence of burnout symptoms. The findings also indicated that cross-training increases job satisfaction among cross-trained public safety personnel. The findings support the

conclusion that cross-training of public safety personnel can reduce burnout and improve job satisfaction.

Dedication

To Katie, my friend, my pillar of support, my wife.

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CHAPTER 1: INTRODUCTION

Public safety personnel providing police, fire and emergency medical (EM) services experience high levels of stress leading to the emotional exhaustion referred to as burnout (Brough, 2004). High stress levels lead to lower job satisfaction, and higher turnover, absenteeism and early retirement among public safety personnel (Haisch & Meyers, 2004). Chronic stress leading to burnout can also impair the performance of public safety personnel (Ireland, Malouff, & Byrne, 2007). Previous research has extensively investigated the causes of stress and effectiveness of coping strategies among public safety personnel relying on theories such as demand control (Pomaki & Anagnostopoulos, 2003) and effort-reward (Siegrist, 2002). The previous research, however, has not examined the use of cross-training of public safety personnel to reduce burnout and to improve job satisfaction. This quantitative, cross-sectional study investigates the relationship between cross-training of public safety personnel and job satisfaction and stress. This chapter contains the background of the problem, a specific statement of the problem, and a brief discussion of the theoretical foundations of the investigation. It also presents the research question and hypotheses.

Background of the Problem

Public safety personnel are employed in a unique work environment because of their exposure to traumatic events potentially affecting their psychological and physical health (Ireland, Malouff, & Byrne, 2007; Otega, Brenner, & Leather, 2006). The role of public safety personnel in society is changing because of new threats such as terrorism and increased performance expectations. In addition, public safety personnel frequently encounter situations in which the welfare of others depends on their judgment.

Stress develops among public safety personnel because of an imbalance in the specific psychological and physical demands of the work and the resources available to meet the demands (Ortega, Brenner, & Leather, 2006). In the demand control theoretical model of stress, external environmental factors known as stressors create stress, which produce strains or the individual reaction of the individual to the stressor (Johnson, Todd, & Subramanian, 2005; Pomaki & Anagnostopoulos, 2003). An individual with chronic stress may suffer from psychological symptoms such as withdrawal, anxiety, depression, and phobias, and physiological symptoms such as hypertension and coronary disease (Tomei, et al., 2005). Chronic stress among public safety employees also affects the governmental agencies responsible for providing safety services. Employees experiencing chronic stress are more likely to be absent, to seek alternative employment opportunities, and to have low productivity (Haisch & Meyers, 2004). Because of the effects of chronic stress on personnel, the cost of providing public safety services can increase substantially. Burnout may result if an individual experiences stress for an extended period. Burnout is characterized by emotional exhaustion, withdrawal, and a sense of futility of work tasks and outcomes, which is known as internal burnout. Some individuals respond to burnout by depersonalizing others, which is known as external burnout (Johnson, Todd, & Subramanian, 2005). Burnout is common among individuals in professions providing services to troubled populations.

Chronic stress can produce low job satisfaction, which contributes to absenteeism, high organizational turnover rates, and lower productivity. In the two-factor theory of job satisfaction, stress is a hygiene or environmental factor reducing job satisfaction (Herzberg, 2003; Miner, 2002). Stress influences job satisfaction by reducing

performance motivation and the value the employee attaches to incentives such as compensation, opportunities for advancement

Employee training to improve skills and coping strategies can reduce stress and improve job satisfaction (Driskell, Johnston, & Salas, 2001; Owens, 2006; Salas, Bowers, & Edens, 2001). Training may reduce stress by providing practice in the tasks the employee is likely to encounter in the operational environment (Salas, Bowers & Edens, 2001). Familiarity with the task and the appropriate response to different situations provides guidance, reducing the amount of conflict and stress experienced in a situation (Driskell, Johnston, & Salas, 2001). Researchers have also identified training as a factor contributing to higher job satisfaction (Owens, 2006). Training is a professional development opportunity for employees providing additional skills necessary for task functions, increasing confidence when the employee performs the task.

The agencies employing public safety personnel expect employees to maintain control over emotional responses to the situations they encounter. As a result, public safety personnel often perceive expression of emotion as unsafe and tend to suppress emotional responses to stressful situations and events (Johnson, Todd, & Subramanian, 2005). Some public safety agencies provide training for personnel in stress coping strategies focusing on physical stress reduction approach such as exercise. Coping strategies among public safety personnel vary significantly, however, and are frequently ineffective in reducing chronic stress from routine and traumatic stress from unusual events (Tomei, et al., 2005). In some cases, the coping strategy is dysfunctional and relies on substance abuse. Demographic variables such as age, education, and experience also influence the effectiveness of coping strategies used by public safety personnel.

Public safety agencies have traditionally used organizational structures fully segregating police, firefighting and EM departments. Any stress training offered by the segregated agency is tailored to the specific needs of the public safety personnel employed by the compartmentalized department. Some jurisdictions, however, are implementing a consolidated public safety department (PSD) to reduce administrative costs (Matarese, et al., 2007). In the PSD model, police, fire and EM personnel routinely work together, with operations requiring substantial integration of task functions. As a result, the PSD must cross-train personnel to ensure public safety personnel can assist each other in the performance of tasks in the field. In the PSD approach, police, fire and EM personnel remain specialists in their respective public safety tasks. The cross-training supports some generalization among personnel to perform public safety functions outside the range of their specialty. Cross-training is intended to create greater flexibility when allocating personnel to deal with public safety emergencies by allowing the generalists in the public safety field to provide support as necessary to the specialists (Matarese, et al., 2007). The PSD model also provides a greater degree of unity of command in responding to emergency situations, which is particularly important following disasters or terrorist attacks. The on-site commander has authority to allocate personnel from all public safety departments to meet operational needs.

Problem Statement

The specific problem investigated in this quantitative cross-sectional study is whether cross-training in a consolidated PSD leads to lower burnout from stress and higher job satisfaction when compared to public safety workers in segregated public safety departments (Matarese, et al., 2007). In the burnout theory of stress,

organizational changes can influence stress and burnout by shaping the operational and support environment of employees (Dollard, Winefield, & Dollard, 2003). In the traditional public safety organizational model, police, fire and EM personnel are segregated and must deal with stress produced by their specific public safety tasks and operational environment. In contrast, the PSD organizational approach can potentially expose personnel to stress normally associated with their specific public safety function as well as stress related to other public safety functions. Organizational factors in a consolidated PSD such as changes to policies, procedures and command structures may also create additional stress for personnel. Cross-training is intended to provide employees with the skills necessary to perform other public safety functions and to establish a working relationship among police, fire and EM personnel.

Municipalities implementing the PSD approach commit substantial resources to reorganization and cross-training of personnel (Matarese, et al., 2007). The effect of the PSD approach on stress and job satisfaction, however, is uncertain. If the need to perform a broader range of public safety functions produces higher stress and lower job satisfaction among personnel, the PSD could face higher burnout rates and increased absenteeism and turnover. If the cross-training reduces stress for public safety personnel by creating an additional support structure in the organization, the PSD model would provide a benefit to all municipalities.

Because the PSD approach has been recently developed and implemented by some municipalities, there has not been sufficient research to identify the effect of the organizational consolidation and cross-training on stress among public safety personnel. Investigations of stress and job satisfaction among public safety personnel in separate

departments have produced conflicting data. Some research suggests all public safety personnel experience similar stress and have similar job satisfaction, which is not related to the specific public safety task (Brough, 2004; Paton, 2003). The majority of the research, however, presumes police, fire, and EM personnel inherently experience different types of stress and have variations in job satisfaction, and investigates each department separately (Del Ben, et al., 2006; Ireland, Malouff, & Byrne, 2007).

Purpose of the Study

The purpose of this quantitative, correlational study was to statistically compare burnout and job satisfaction among public safety employees in PSDs with cross-training in police, fire fighting and emergency medical service (EMS) duties with public safety employees trained only in their functional task specialty. The objective of the study was to identify statistically significant differences in burnout and job satisfaction between public safety personnel receiving cross-training in a PSD with public safety personnel in traditional departments receiving training only in their specific task functions. The independent variable of the study was cross-training in public safety functions, and the dependent variables of the study were burnout and job satisfaction. Demographic variables such as age, gender and experience were moderating variables. Police, fire and EM personnel from PSDs and from traditional segregated public service departments provided data by completing a survey questionnaire designed for the study. The research approach established inclusion and exclusion criteria for the study population and limited data collection to three states. The data were analyzed using ANOVA to test the hypotheses developed for the study. The data were also used to prepare descriptive statistics about the study population.

Significance of the Study

The findings of this study may have significance for public safety managers and municipal decision makers by identifying the effect of using cross-training in a consolidated PSD on stress and job satisfaction. Some municipalities have adopted the PSD approach and cross-training of personnel to reduce operational costs (Matarese, et al., 2007. The effect of the organizational changes from the PSD approach on burnout and job satisfaction, however, is uncertain. As a result, the findings of the study may provide information for public safety managers about the extent and sources of stress among cross-trained public safety personnel in a PSD. In addition, the findings of the study may provide information to support programs to improve job satisfaction in a PSD.

The findings of the study may also contribute to the general body of research about stress and job satisfaction among public safety personnel. Most previous research about stress and job satisfaction has focused on police departments (Haisch & Meyers, 2004; Ireland, Malouff, & Byrne, 2007; Ortega, Brenner, & Leather, 2006). Few studies have investigated stress and job satisfaction among firefighters and EM personnel (Del Ben, 2006). There have been no previous investigations of stress and job satisfaction in a PSD in which public safety personnel have been cross-trained and routinely perform functions outside their area of specialization.

Nature of the Study

This quantitative correlational study statistically compared burnout and job satisfaction among public safety employees in PSDs with cross-training in police, fire fighting and emergency medical service (EMS) duties with public service employees trained only in their functional specialty. The study used a quantitative research design to

test the existence of differences in burnout and job satisfaction between a group of public safety personnel employed in organizations using the PSD structure and a group of public safety personnel employed in organizations using the traditional departmental structure. Data were obtained with a survey questionnaire developed for the study and disseminated to public safety personnel in three states. A pilot test was used to assess the reliability of the survey questionnaire. The study population consisted of police, fire and EM personnel employed by municipal public safety organizations. The data were used to statistically test the hypotheses of the study with ANOVA and to provide descriptive statistics of the study population. ANOVA is an appropriate method for statistical analysis when the purpose of the research is to identify variation in the means of groups influenced by an independent variable. It is also suitable for non-experimental research when both groups are subject to the same effects from random variables not easily controlled for in the research design (Maxwell & Delany, 2004).

The study used a quantitative research design because its purpose was to statistically test for burnout and job satisfaction between two groups. A quantitative research design is suitable for investigations in which the variables can be measured and the relationships between the variables can be established in a sequential order (Cresswell, 2004). In this study, proxy measures were used to measure the dependent variables of burnout and job satisfaction. The independent variable of cross-training was measured by whether the PSD offered cross-training. The moderating variables were measured with the age, gender, and other demographic data the respondents provided during the data collection process. The variables also have a sequential or temporal relationship. The independent variable of cross-training precedes the hypothesized

outcome of burnout and job satisfaction. The quantitative research design was based on the positivist paradigm, which postulates the existence of relationships among variables in a group of study participants can be generalized to a larger population (Newman & Benz, 1998).

Research Questions and Hypotheses

The research focus of this study was the effect of cross-training on burnout and job satisfaction among police, fire, and EM personnel in PSDs compared to personnel in segregated police, fire and EM departments. The research focus established the boundaries of the study for developing the research questions and hypotheses. The first research question of the study was: Do police, fire and EMS line personnel in cross-trained PSD experience differences in burnout than police, fire and EMS personnel in traditional public safety departments that are not cross-trained? The research question investigated whether cross-training assists public service personnel to cope with stress. The research question was based on the perspective of training and the availability of field support from additional personnel to perform public safety functions changes the resources available to meet the demands in the operating environment. In theory, the change in resources can have an effect on the perception and response to stress (Driskell, Johnston, & Salas, 2001; Ortega, Brenner, & Leather, 2006).

The second research question of the study was: Do police, fire and EMS line personnel in cross-trained PSD experience differences in stress and job satisfaction than police, fire and EMS personnel in traditional public safety departments that are not cross-trained? Because cross-training provides additional skills and knowledge for public safety personnel to perform functional tasks, it may be a professional development motivating

factor. Cross-training may also improve operational safety for personnel and improve relationships with coworkers, influencing job satisfaction as a hygiene factor (Owens, 2006).

The research questions establish the basis for the hypotheses of the study. The first hypothesis of the study was: H1 Line personnel in cross-trained public safety departments, performing multiple functions of police, fire, and EMS, will experience lower rates of burnout than their traditionally trained line personnel in traditional single function public safety agencies. This hypothesis tested whether cross-training in a PSD is more effective for reducing stress and improving job satisfaction than the traditional approach of training solely for specific police, fire and EM tasks. The independent variable for the first hypothesis is cross-training of public safety personnel and the dependent variable is job satisfaction reported by the study participants.

The second hypothesis of the study in its null from was: H2: Cross trained line personnel in cross-trained public safety departments performing multiple functions as police, fire, and EMS will experience higher job satisfaction than traditionally trained single function police, fire, and EMS. The second hypotheses tested whether cross-training in a PSD has an effect on stress and burnout when compared to the traditional approach of training solely for specific police, fire and EM tasks. The independent variable for the second hypotheses is cross-training of public safety personnel and the dependent variable is burnout reported by the study participants.

Theoretical Construct

The theoretical construct used in the study postulates a relationship between cross-training and burnout and job satisfaction. Cross-training is a variable potentially

influencing burnout among public safety personnel by improving the ability to cope with stress produced in the operating environment of personnel. Cross-training is also a variable potentially increasing job satisfaction by improving relationships with coworkers and providing a professional development opportunity. Burnout theory originally proposed by Maslach and Jackson (1981) and the two factor theory of job satisfaction originally proposed by Herzberg, Mausner, and Snyderman (1959) provided the basis for the general theoretical construct used in the study.

According to burnout theory, continued relationships with troubled populations required in the work environment produces chronic stress leading to emotional exhaustion, depersonalization and a sense of reduced personal accomplishment (Kickul & Poisig, 2001). Because the efforts of employees to assist the troubled populations often do not have positive outcomes, many employees experience stress and a sense of frustration. Many factors, however, can operate as moderators of burnout such as the extent of support from the organization and the ability of the individual to cope with frustrations inherent in some work environments (Dollard, Winefield, & Dollard, 2003). Training is an organization factor with the potential to moderate burnout by providing employees with information about situations and appropriate responses (Driskell, Johnston, & Salas, 2001). The alternative theories of stress such as demand control theory (Pomaki & Anagnostopoulos, 2003) or the effort-reward (Siegrist, 2002) are related to the theoretical construct used in the study. The alternative theories were not included in the construct because they emphasize variables not closely related to training.

In the two-factor theory of job satisfaction, two groups of variables referred to as hygiene factors and motivators influence job satisfaction (Miner, 2002). The hygiene

factors are variables external to the employee such as compensation, safety of the work environment, and relationships with coworkers and supervisors. The motivators are variables internal to the individual such as opportunities for professional development and recognition for achievement. The two groups of variables operate independently from each other. A perception of inadequacy of hygiene factors leads to job dissatisfaction, but improvements to hygiene factors perceived as adequate will not increase job satisfaction. Conversely, a perception of inadequate motivators does not lead to decreased job satisfaction, but improvements to motivators can increase job satisfaction (Herzberg, 2003). In the theoretical construct of this study, cross-training is a hygiene factor with the potential to improve safety in the work environment and improve relationships with coworkers. The alternate range of affect proposed by Locke (1976) was not included in the theoretical construct because it postulates alignment between expectations and employment conditions as the source of job satisfaction. The theoretical construct for this study did not rely on range of affect theory because training may not be a significant moderator of expectations or employment conditions. Another alternative is social information processing theory proposed by Pfeffer and Salancik (1978), which postulates employees form a social construct based on the opinions of others resulting in job satisfaction. The theoretical construct for this study did not rely on social information processing theory because training may not be a significant influence on the social constructs in an organization.

Assumptions

The underlying assumption in this study was the existence of a relationship between cross-training, burnout, and job satisfaction among public safety personnel

capable of testing by the analysis of data obtained from the dissemination of a survey questionnaire to the study population. This assumption is based on the theoretical construct of the study and previous research indicating training can influence burnout and job satisfaction (Driskell, Johnston, & Salas, 2001; Owens, 2006; Salas, Bowers, & Edens, 2001). Another assumption of the study was the study participants provided truthful and accurate data, which was not influenced by data collection methods or concerns about disclosure of the information to employers. The rationale for this assumption is the confidentiality procedures used by the study influenced study participants to provide accurate information in the survey questionnaires. An additional assumption of the study was minimal influence on the findings of researcher bias because of the quantitative research design, which used objective statistical methods for the analysis of the data.

Scope, Limitations and Delimitations

The scope of the study was restricted to an investigation of the variables of cross-training, burnout and job satisfaction among public safety personnel. The scope of the study population was also restricted to police, fire and EM public safety personnel in three states. This restriction to the study population was because of time and cost boundaries for the study. The scope of the study population was additionally defined as including public safety personnel

Limitations of the study include the method used to collect data, the accuracy of the data provided by respondents to the survey questionnaires and the potential for researcher bias. The reliability of the survey questionnaire was assessed using Cronbach's alpha with the data obtained in a test. Nonetheless, the data collection instruments may

not have collected sufficiently comprehensive data related to the theoretical construct to effectively test the hypotheses of the study. Despite the use of convenience sampling methods and statistical analysis of the data, research bias may influence factors such as research design and the conclusions drawn from the data analysis. Another limitation of the study was the use of a seven-point Likert scale on the survey questionnaires. The Likert scale creates pre-defined response boundaries, with respondents unable to provide other data possibly relevant to the study. This limitation can influence the ability to generalize the findings.

A delimitation of the study is the possibility of confounding variables not accounted for in the research design influenced the findings of the study. The various theoretical models of burnout and job satisfaction imply that many variables other than cross-training can influence burnout and job satisfaction among public safety personnel. Controlling for all variables was not possible because of the complexity of the variables and instrumentation to obtain data about a wider range of variables. The study was also delimited to the consideration of burnout using burnout theory (Maslach & Jackson, 1981) and the dual factor theory of job satisfaction (Herzberg, Mausner, and Snyderman (1959) for collecting, analyzing, and interpreting the data.

Definition of Terms

Burnout – Burnout is a syndrome comprised of emotional exhaustion, depersonalization and a reduced sense of accomplishment (Dollard, Winefield, & Dollard, 2003).

External Burnout – External burnout is a reaction to chronic stress in which an individual depersonalizes others (Johnson, Todd, & Subramanian, 2005)

Internal Burnout – Internal burnout is an internally focused reaction to chronic stress in which an individual exhibits emotional exhaustion, depression and anxiety (Johnson, Todd, & Subramanian, 2005).

Job satisfaction – Job satisfaction is the degree of fulfillment employees feel as a result of their employment position (Chalofsky, 2003).

Summary

This study investigated the relationship between cross-training of police, fire and EM public safety personnel and burnout and job satisfaction. Determining the effectiveness of cross-training for reducing burnout and improving job satisfaction has significance for PSDs considering cross-training of personnel. The independent variable in the research was cross-training, and the dependent variables were burnout and job satisfaction. Demographic factors were additional variables. The study used a survey questionnaire to collect data from public safety personnel in three states. ANOVA was used to identify differences in burnout and job satisfaction between pubic safety personnel receiving cross-training and public safety personnel not receiving cross-training. Burnout theory and the two-factor theory of job satisfaction established the theoretical construct of the study. The next chapter contains a review of related literature. It examines the variables of burnout, job satisfaction and training, identifying theory and previous research applying theory to public safety personnel.

CHAPTER 2: LITERATURE REVIEW

Introduction

This quantitative, correlational study statistically compared burnout and job satisfaction among public safety employees in PSDs with cross-training in police, fire fighting and emergency medical service (EMS) duties with public safety employees trained only in their functional task specialty. Chapter 1 contained a preliminary review of the literature to provide background information on the topic. Chapter 2 contains a more extensive examination of previous research related to the dependent variable of burnout, which included the theories of stress, and the independent variable of cross-training of public safety personnel. The literature review in this chapter also examines previous research related to the moderating variable of job satisfaction, including theories of job satisfaction. This chapter is organized in sections consisting of: a) stress and burnout; b) job satisfaction; c) public safety departments and cross-training; d) implications of the literature; and e) summary of the literature review.

Stress and Burnout

The experience of stress is subjective because the perception of whether an event or situation is stressful varies among individuals (Tomei, et al., 2005). The response to stress is also variable, with coping strategies differing significantly among individuals. Because of the subjective nature of stress perceptions and the wide range of possible responses, theorists have developed several definitions of the causes of stress. In general, stress is an interactive process between the demands of situation and the ability of the individual to deal or cope with the demands (McGowan, Gardner, & Fletcher, 2006). Stress is also defined as the experience of major life events the individual interprets as

undesirable, with the negative experience considered a traumatic event (Lazarus & Folkman, 1984; Regehr, et al., 2007). Stress can develop cumulatively from the exposure to minor stressors over an extended period (Ireland, Malouff, & Byrne, 2007). The chronic exposure to minor stressors places a strain on the individual's ability to adapt, which interrupts routine functioning.

Occupational stress is a form of stress developing from exposure to traumatic or routine events in the workplace. According to Dollard, Winefield, and Dollard (2003: 5), occupational stress is "harmful physical and emotional responses that occur when the requirements of the job do not match the capabilities, resources, or needs of the worker." When an employee does not use effective coping strategies, occupational stress is often associated with negative outcomes such as lower productivity, the formation of a turnover intention, and increased absenteeism (McGowan, Gardner, & Fletcher, 2006). Chronic exposure to high occupational stress can lead to burnout (Thompson, Kirk, & Brown, 2005). If the stress results from a significant traumatic incident, an employee can also develop emotional and physical symptoms associated with post-traumatic stress syndrome (PTSD) (Brough, 2004; Haisch & Meyers, 2004).

Theories of Stress

Because of the subjective nature of stress, researchers have developed several theoretical models to explain individual responses to stressors and the differences in effectiveness of coping strategies (Dollard, Winefield, & Winefield, 2004; Pomaki & Anagostopoulos, 2003; Siegrist, 2002). The theoretical models of stress are based on an assumption of environmental factors or stressors producing stress and individual responses to cope with the stressors, which are sometimes referred to as a strain response

(Johnson, Todd & Subramanian, 2005). While the various theories explain some of the factors associated with the response to stressor and have been partially validated by research findings, there is no universal theory accounting for all of the variables associated with stress (Dollard, Winefield, & Winefield, 2004). In addition, there appears to be substantial variation in the way in which various constructs are measured, which is because of the difficulties with developing quantifiable measures for many of the non-physiological variables influencing stress (Thompson, Kirk, & Brown, 2005).

The demand control theory of stress postulates the environment creates stress, with no mediating effect on the perception of stress from the psychological or physiological characteristics of the individual factors of the individual. In this theory, the nature of the environment determines the degree that individuals can use coping mechanisms to reduce the effect of stressors. The implication of the premise is the amount of control individuals can exercise over the environmental factors producing stressors is the critical factor for coping with stress (Pomaki & Anagnostopoulos, 2003). When the individual has a low locus of control, they experience higher levels of stress. The locus of control concept accounts for the differences in the response to stress, which are not dependent on individual characteristics. Empirical research to validate this theory, however, suggested it is an accurate description of stress processes only in situations in which stressors from the environment are constant and cumulative and the individual has a low locus of control preventing development of coping mechanisms (Theorell & Karasek, 1996).

The effort-reward imbalance theory developed by Siegrist (2002) postulates the existence of a transactional relationship between environmental threats and constraints

and the coping resources of the individual. The theory is transactional because it relies on the premise that the relationships between individuals are the primary source of stress, which creates an exchange between the individual and others. The individual expends effort in an environment such as a job situation and expects socially negotiated rewards in exchange for the effort (Dollard, Winefield, & Dollard, 2003). The rewards may be tangible such as compensation, but more commonly are intangible rewards such as recognition or a sense of accomplishment (Siegrist, 2002). If the employee does not receive the expected rewards, stress develops because of the perceived imbalance between the effort and the reward. The effort-reward imbalance concept differs from the demand control model because it allows for individual variations in the expectations for reward. In the effort-reward imbalance theory, the individual does not attempt to control the environment, but rather negotiates with other individuals to obtain sufficient rewards to reduce stress.

Some empirical research supports the validity of the effort-reward imbalance theory based on the relationship between adverse health effects and the perceived imbalance between effort and rewards. In an investigation of the impact of downsizing on the health of workers using an effort-reward imbalance theoretical framework, Kivimaki et al (2000) determined that there were higher levels of stress among workers who perceived downsizing frustrated their expected reward for effort expended on behalf of an organization. Euwema, Kopt, & Bakker (2004) also found an increase in stress among public service personnel experiencing an imbalance between the perception of effort and rewards. The research findings, however, have not fully validated the theory because of

the variation resulting from differences in individual responses to similar imbalances between expectations and rewards.

The cognitive-phenomenological theory originally proposed by Lazarus and Folkman (1984) is another attempt to explain the way stress develops and the variations in individual responses to stressors. The theory is based on biopsychosocial variables, and examines how the characteristics of the individual interact with the environment to produce perceptions of and reactions to stressors. In cognitive-phenomenological theory, stress is defined as a subjective appraisal by the individual of their relationship with the environment. If the individual determines that the environmental produces more stressors than they can cope with, the individual concludes the environment is threatening their well-being (Dollard, Winefield & Winefield, 2004). If individuals cannot withdraw from the dangerous environment, they experience stress. The theory relies on an assumption that individuals engage in a cognitive appraisal of the environmental condition leading to an evaluation of perceived threats. The conclusions drawn from the cognitive appraisal produce a physiological response. The cognitive processes can theoretically mediate the physiological responses reducing the level of stress caused by the environmental factor through a transactional process. The cognitive process can also include coping mechanisms such as an attempt to moderate the environment or an internal attempt to regulate the emotional distress caused by the stressor. The theory is phenomenological because it is based on a premise in which the perception of stress depends on the meaning different individuals place on events, which results in variation and subjectivity in the perception of an event or a situation as stressor.

While research has validated some of the aspects of the cognitive-phenomenological model of stress, the findings of various studies are largely dependent on how the constructs are measured. Michel and Jehn (2006) investigated the role of emotional intelligence as a mediator for stress in the cognitive-phenomoneological model. The degree of involvement of individuals with their environment was a proxy measure for the level of cognitive appraisal of the environment. From this perspective, a high degree of involvement with the environment was presumed to imply more efficient cognitive mediation while a low degree of involvement implied greater self-focus and reduced cognition to mediate the effect of environmental stressors. According to Michel and Jehn (2006: 191), "the concepts that the individuals supplied to the situation were often not relevant." They concluded that individuals use a phenomenological construct to interpret the situation and the nature of the stressors, which can only be measured subjectively. In contrast to the measure of degree of involvement with the environment, Rafferty and Griffin (2006) used a measure of perception of the individual towards change in the environment to investigate the relationship between environmental changes and stress. The research design and measurement methods in this study presumed all participants interacted similarly with their environment, but placed different interpretations on the meaning of perceived environmental changes. McGowan, Gardner, and Fletcher (2006) used another measurement approach in research based on the on the cognitive-phenomenological model. The study used the Job Affective Wellbeing Scale, with a positive affective response towards employment as a proxy measure for the perception of environmental stressors. The use of different measures in research based cognitive-phenomenological model leads to a conclusion that the construct may be

difficult to use in empirical research because of the many factors influencing subjective perception of environmental stressors.

The vulnerability-stress interaction theory provides another explanation for the causes and responses to stress. In this theory, individuals have different vulnerabilities to stressors, which results in different degrees of resilience among people to the influence of similar stressors (Morrison et al, 2004). The vulnerabilities exist because individuals have characteristics predisposing them to both a perception of an event as a stressor and the type of reaction to a perceived stressor. In this model, stress manifests itself as a response to the interaction between biopsychosocial factors and the environment. When an individual has a high vulnerability to stress, a relatively low level of environmental stressors can produce a stress response. In contrast, an individual with a low vulnerability to stress can function in environment without experiencing a high level of stress. The implications of the theory are that individuals with stress vulnerability may not be well-suited to function in certain high stress environments.

Krantz and McCeney, (2002) partially confirmed the validity of the vulnerability-stress interaction model, with individuals that have low coping or resiliency mechanisms more likely to experience stress. The research investigated the relationship between the characteristics associated with resiliency and negative physical responses to chronic stress. The findings showed individuals with resiliency characteristics were less likely to manifest symptoms of coronary artery disease. The findings, however, were limited to the investigation of a single physical disorder with multiple possible causes.

The common element in the various theories related to stress is the premise of external factors in the environment functioning as stressors and internal factors

controlling the response to the stressors. Despite the common elements, there remain significant differences in the processing mechanisms proposed in the theories. In demand-control theory, all individuals objectively perceive external events as stressors (Pomaki & Anagnostopoulos, 2003). The effort-reward imbalance and the cognitive-phenomenological theories, however, propose that the perception of external events as stressors is subjective and resulting from the individual's interpretation of the event (Lazarus & Folkman, 1984; Siegrist, 2002). The theories also differ in their models of the way individuals respond to objective or subjective environmental stressors. The demand-control theory postulates that individuals attempt to control the environment with stress developing from inability to exercise control. In effort-reward theory, individuals reduce their effort to create greater alignment with rewards to eliminate stress (Siegrist, 2002). In the cognitive-phenomenological theory, individuals make cognitive choices to avoid stress (Lazarus & Folkman, 1984), and in the vulnerability-stress interaction theory individuals improve their capabilities to contend with stress (Morrison et al, 2004). The differences in the theories support the argument advanced by Dollard, Winefield and Dollard (2004) that no single theory adequately explains the full range of stress perceptions and responses.

Burnout

Burnout theory explains the response to the experience of chronic stress. Maslach and Jackson (1981) initially developed a theory of burnout in which emotional exhaustion, depersonalization and a lower sense of accomplishment are the outcomes of chronic stress. The development of burnout is gradual and occurs from consistent exposure to stressors with the coping mechanisms of the individual insufficient to

adequately reduce the perception of stress. Maslach and Jackson (1981) also proposed that burnout is a multidimensional construct, and manifests itself in different behaviors. The individual suffering from burnout often attempts to find alternative employment, withdrawing from the situation creating the stress. If the individual continues in the stressful situation, burnout reduces productivity and can damage health. The theoretical perspective of Maslach and Jackson (1981) relates to the demand control theory of stress because it suggests the individual does not have sufficient locus of control to cope with chronic environmental stressors (Pomaki & Anagnostopoulos, 2003). The perception of lack of control leads to frustration and hopelessness, and the use of dysfunctional coping techniques such as avoidance. In addition, burnout is related to impaired job performance, particularly among professionals providing services to troubled populations (Euwema, Kopt, & Bakker, 2004).

More recent approaches to burnout theory adopt a transactional perspective based the effort-reward imbalance theory proposed by Siegrist (2002). The stress leading to burnout develops from interpersonal relationships requiring significant effort with the rewards not perceived as sufficient to compensate for the effort (Kickul & Poisig, 2001). The effort-reward approach to burnout theory may be particularly applicable to professionals who provide services to troubled populations, with the stress embedded in the complex social relationship (Euwema, Kopt, & Bakker, 2004). Although the service provider performs the functional tasks necessary for the job, the service recipient does not visibly benefit. Over the long-term, the service provider experiences chronic stress leading to burnout. Research using the effort-reward approach to burnout theory showed a number of factors can operate as moderators for the burnout phenomenon. Some of

these factors include the type and range of supports available in the workplace (Kickul & Poisig, 2001) or the ability of the individual to develop coping mechanisms (Johnson, Todd, & Subramanian, 2005). The moderating factors account for the differences in the occurrence of burnout among individuals exposed to similar types of chronic stress from interpersonal relationships in the workplace.

According to Thompson, Kirk, and Brown (2005: 201), "role ambiguity, role overload, and role conflict are the three situational role variables in relation to outcomes such as burnout." Role ambiguity occurs when the behavioral or performance expectations of a position in an organization are not clear to the employee. Social factors within the organization can produce role ambiguity even if the employee understands the functional tasks associated with a position. Role conflict occurs when the organization directly or indirectly expects the employee to assume a different role. Role overload occurs when the tasks cannot be completed in the amount of time expected by the organization. If the employee chronically lacks sufficient role clarity, which often occurs when working with troubled populations, burnout is likely to occur.

Pines and Keinan (2005) used data obtained from public safety personnel to explore the difference between the constructs of stress and burnout. The theoretical premise underlying the research was the possibility of different antecedents leading to stress and burnout. The findings of the study showed a higher correlation between job stressors and stress than between job stressors and burnout. Stress results from conflicts in an individual's roles. In addition, the intervening variable of perceived importance of the job mediated burnout, but did not mediate stress. Pines and Keinan (2005) concluded that burnout only appears to be related to stress because of some shared antecedents. The

findings and conclusion of the study imply research investigating burnout should develop models and constructs distinguishing burnout from stress.

Stress and Burnout among Public Safety Personnel

Because the transactional approach to burnout theory is based on the premise that stress develops among service employees dealing with troubled populations, the model has been used to support investigations of stress among public safety personnel. The research has also pursued separate strands of investigations of the stress effects from traumatic events and investigations of the cumulative stress effects from continuous exposure to low level stressors.

Most of the research involving public safety personnel has focused on police officers (Euwema, Kopt, & Bakker, 2004; Johnson, Todd, & Subramanian, 2005; Thompson, Kirk, & Brown, 2005). The few studies investigating stress and burnout among firefighters and EMS suggested the responses to stress and coping mechanisms are similar (Robbers & Jenkins, 2005). In addition, the transactional approach to burnout theory implies that providing additional organizational support for public safety personnel can mediate stress and prevent burnout. Mediating support factors include providing additional training, and improving relations with coworkers and supervisors (Miller, 2007; Thompson, Kirk, & Brown, 2006).

Stress and burnout among police officers leads to higher turnover rates and impaired performance, which can endanger the police officers and the public (Ireland, Malouff, & Byrne, 2007). Much of the research investigating stress among police officers examines the causes of stress and the coping strategies used by individual members of police departments. There have been some investigations, however, of the nature of

stressors and strains among firefighters and EMs (Brough, 2004; Iwasaki et al., 2002). The distinction in the research between police and other public safety personnel is largely due to the theoretical populations served by each of the three types of activities. Police provide protection against crime, and are routinely involved with individuals with significant social and psychological problems (Johnson, Todd, & Subramanian, 2005). Firefighters and EMs, however, interact with the public only when specific emergency services are required, with employers presuming fire and EM personnel experience lower occupational stress than police (Brough, 2004). The few investigations of stress among fire and EM personnel, however, showed they experience similar levels of stress as police (Brough, 2004; Iwasaki, et al., 2002)

Investigations of the sources of occupational stress among police have identified several organizational sources of stress in addition to the inherent dangers and difficulties from interacting with troubled populations. Organizational stressors include variable shift scheduling, the lack of support from supervisors, and frequent demand for overtime reducing opportunities for leisure activities (Miller, 2007). Thompson, Kirk, and Brown (2005) investigated the relationship between social supports in the workplace and stress among policewomen, finding the perception of insufficient organizational support was a factor contributing to stress. The research also found the subjects of the study distinguished between insufficient organizational support and insufficient support from coworkers as separate sources of stress. Stetz, Stetz and Blaise (2006) identified organizational constraints as a significant source of stress for police. The definition of organizational constraints used in this study was policies and procedures imposed by the law enforcement agency limiting the methods field officers could use when confronted by

specific situations. The constraints restricted the range of possible responses, increasing the perception of stress in a situation because the police officer was concerned about choosing a response outside the constraint boundaries. The study also determined that administrative support mediated the stress created by the organizational constraints. The findings of these studies suggest the public safety organization can create additional stressors for personnel. At the same time, the findings imply the public safety organization can develop policies and practices to reduce the amount of stress it places on employees.

An investigation of leisure as a coping strategy for stress among public safety personnel found no significant differences in stress and coping strategies among police, fire and EM personnel (Iwasaki et al., 2002). In the theoretical model supporting the research, the effectiveness of leisure as a coping strategy depended on the perception of leisure as a beneficial stress reduction method and the type of leisure activities individuals adopted. The public safety personnel participating in the study had a strong predisposition to use leisure to cope with stress. The type of leisure activities, however, varied significantly. Leisure was less effective for reducing stress when it involved solitary activities, and was particularly ineffective when it involved dysfunctional activities. In contrast, leisure effectively reduced stress when the activity involved some form of companionship. These findings provide support for the conclusions of Stetz, Stetz and Blaise (2006) and Thompson, Kirk, and Brown (2005) about the importance of social supports for stress control among police. The findings of Iwasaki et al (2002) also lead to the conclusion that social supports are important for stress reduction among fire and EM personnel.

Public safety personnel also face occupational stress from the inherent dangers of police, fire and EM functions, which place personnel in dangerous and potentially traumatic situations as part of the normal work routine (Robbers & Jenkins, 2007). The task-related occupational stress is chronic because public safety personnel are obliged to perform their primary tasks in dangerous environments. In addition, public safety personnel are sometimes unaware of the full range of dangers in a situation (Iwasaki, et al, 2002). Because of the inherent dangers associated with public safety jobs, a research strand has pursued the effects of traumatic events on public safety personnel from the perspective of PTSD.

Recent studies distinguish between traumatic incidents producing PTSD and cumulative stress from routine events occurring in public safety work (Brough, 2004). Individuals experiencing a traumatic event outside can develop PTSD, which produces avoidance reactions for an extended period after the event (Haisch & Meyers, 2004). PTSD among police officers often results in higher rates of absenteeism, turnover and early retirement. PTSD is also associated with depression, loss of sleep, and avoidance of situations potentially leading to a similar type of traumatic event (Regehr et al., 2007). Investigations of PTSD among police officer indicate it has a greater effect on younger and less experienced police officers, particularly if they experience a traumatic event early in their careers (Haisch & Meyers, 2004). The individual coping strategies recommended to relieve stress from routine events are not effective in reducing the effect of PTSD (Haisch & Meyers, 2004).

An investigation of the physiological responses of police officers with PTSD found the amount of cortisol and other stress-related hormones were related to anxiety

levels (Regehr, et al., 2007). The introduction of new stressful stimuli produced greater stress-related biological responses among police officers with PTSD when compared to a control group without PTSD. In addition, the biological responses were related to anxiety levels. Police officers with PTSD who developed coping mechanisms to reduce anxiety had significantly lower stress-related biological responses. The study participants with lower anxiety levels reported stronger social supports following the traumatic event, including organizational supports. Regehr et al (2007) contended the findings of the study can be extended to all emergency service personnel experiencing traumatic events and suffering form PTSD.

McCaslin et al. (2006) identified alexithemia, or the inability to express emotions, as a symptom among police officers experiencing traumatic events, which is a symptom associated with PTSD. The study group consisted of police officers who had participated in the rescue operations following the terrorist attacks in New York on September 11, 2001. A control group consisted of police officers from cities in California, who were selected because of remoteness from the traumatic events. The members of both the study and control groups had not been formally diagnosed with PTSD. The findings of the study found a higher prevalence of alexithemia among members of the study group compared to members of the control group. The findings also suggested that alexithemia was a predictor of the severity of the traumatic stress experienced by the police officers. Jenkins and Robbers (2005) also found a higher incidence of PTSD among public safety personnel responding to the terrorist attacks on the Pentagon on September 11, 2001. The Impact of Event Scale was used to identify PTSD among the study population. The results of the study showed a correlation between the amount of time the public safety

personnel spent at the scene and the number and magnitude of PTSD-related symptoms. The findings of the studies of McCaslin et al (2006) and Jenkins and Robbers imply that all public safety personnel can potentially develop PTSD from exposure to traumatic events, with the severity of the disorder increasing from prolonged exposure.

Ireland, Malouff, and Byrne (2007) examined the effectiveness of private diary-writing as a strategy for planning and implementing a coping strategy among police officers with PTSD. The theoretical premise underlying the research was high stress and anxiety levels inhibits individuals from developing rational solutions to reduce stress and anxiety levels. Writing about emotions and feelings as well as a concrete plan to reduce stress can be an effective coping strategy. The research used an experimental approach with a study group writing about feelings and coping strategies and a control group not performing the writing intervention. The Depression Anxiety Stress Scale was used to measure stress before and after the intervention. The findings indicated the study group experienced a significant reduction in stress following the intervention compared to the control group. The coping strategy of writing about emotions could potentially be a means to reduce the severity of the alexithemia identified by McCaslin et al. (2006) as a consequence of traumatic experiences.

Ortega, Brenner and Leather (2007) conducted a study of police officers to determine if there was a correlation between stress and personality attributes and coping strategies. The data were gathered with a survey of 1,535 police officers, included information about control variables such as training, communications, role-related responsibilities. The findings showed a correlation between personality traits and work-related stress, the type of coping strategies used, and the burnout rate among the

respondents. In contrast, personality traits were negatively correlated with job satisfaction. Demographic variables such as gender, age, or rank in the police force were not correlated with stress, coping strategies or burnout rate. The absence of a demographic correlation conflicts with the findings of Haisch and Meyers (2004), which identified lower stress among older and more experienced police officers using coping strategies for PTSD. Ortega, Brenner and Leather (2007) also found a correlation between the use of positive coping strategies and organizational commitment. The study presumed the environmental conditions in police departments employing the respondents were similar and the variation among respondents could be attributed solely to individual factors such as personality trait differences.

Del Ben et al. (2006) conduced one of the few studies examining burnout and PTSD among firefighters. Previous estimates of the prevalence of PTSD among firefighters ranged from 6.5% to 37%, with the variance attributed to differences in measurements and sample populations. The researchers collected data using survey questionnaires to obtain information about stress experiences, demographics, and stress symptoms. The findings of the study indicated 25% of the respondents had one or more symptoms consistent with burnout and PTSD following a particularly stressful experience. A significant limitation of the study, however, was the use of convenience sampling among firefighters in two states. Because of this limitation, the findings and the conclusions may not be representative of the general population of firefighters.

Both cumulative stress and traumatic events can produce sufficient stress to result in burnout among public safety personnel. Baker and Williams (2001) examined the effect of cumulative stress and traumatic stress among 78 firefighters in an urban fire

department. The study relied on the cognitive-phenomenological theory of stress proposed by Lazarus and Folkman (1984). The authors presumed the firefighters made a cognitive appraisal of the stressors in their environment with differences in perceptions occurring because of personal characteristics. The researchers used a survey questionnaire to gather data about perceived cumulative stressors, traumatic events, and stress experienced by the participants. The findings showed significantly higher stress among supervisors when compared to line firefighters. The authors attributed the differences to the additional responsibility of supervisors for the safety of personnel and the public. In addition, the findings indicated organizational factors created cumulative stress that was equal to the stress produced by traumatic events. The authors concluded the similarity in the stress produced by cumulative and traumatic factors was because the firefighters used similar stress coping strategies regardless of the nature of the stressor. The findings and conclusions of this study are limited because of the small size of the sample population.

Euwema, Kopt, and Bakker (2004) investigated the effects of burnout on the behaviors of police when dealing with the public. The research relied on Segrist's (2002) effort-reward imbalance theory, with police reducing their efforts in response to the high stress leading to burnout. The research gathered data using a survey questionnaire about the perception of occupational demands and rewards and the level of burnout among police officers. The research also used observation to gather data about the interactions of the police with civilians. A dominance scale developed for the study measured the amount of effort used by police when performing their duties. The assumption underlying the measure was exerting control through dominance when interacting with civilians

required more effort than other approaches to conflict resolution. The observers rated each interaction between the subjects of the study and civilians for a three-month period. The findings of the study showed an inverse relationship between burnout and effort as measured by the dominance behaviors of police officers in encounters with civilians. The conclusion reached by Euwema, Kopt, and Bakker (2004) was burnout increases aggressive and dominant behavior among police officers because dominant behavior requires less effort. The authors of this study also concluded that dominant behavior was not an undesirable outcome in the context of law enforcement, although they admitted dominant behavior increased the possibility of conflict escalation in relationship between police and civilians.

Tomei et al. (2006) also found an increase in aggressiveness among police officers as a response to stress. In this study, a survey questionnaire obtained data from police officers at the beginning and end of work shifts. The study compared a group of police officers performing traffic control tasks with a group of police officers performing administrative functions and not engaged in direct contact with the public. The Rapid Assessment Scale was used to assess stress and aggressiveness. The findings of the study showed a significant increase in stress and aggressiveness between the beginning and the end of the shift. In addition, the findings showed no significant differences between the group of police officers engaged in traffic tasks and the group of police officers engaged in administrative tasks. The findings led to the conclusion that organizational factors contributed significantly to stress, which was manifested by increased aggressiveness. While the findings of Euwema, Kopt, and Bakker (2004) and Tomei et al. (2006) identified dominance and aggressiveness as a response to occupational stress among

police officers, the conclusions are limited because the study population consisted of European police officers operating in a cultural environment different from the United States.

Some research examining stress has identified a correlation between stress and job satisfaction (Ortega, Brenner, & Leather, 2007; Pines & Keinan, 2005). Public safety personnel with low stress often have higher job satisfaction than personnel with high stress levels. Stetz, Stetz and Blaise (2006) found a correlation between organizational stressors and low job satisfaction among public safety personnel, but no correlation between traumatic stressors and low job satisfaction. Brough (2003) argued that the inverse correlation between stress and job satisfaction suggested that job satisfaction mediates the perception of environmental events as stressors. While the research findings have established the existence of a correlation between stress and job satisfaction, the magnitude and direction of the relationship remains uncertain. In addition, there is insufficient research to determine if job satisfaction mediates stress or stress mediates job satisfaction.

Job Satisfaction

Job satisfaction is an extensively researched construct with implications for improving staff performance by reducing stress. Research has linked low job satisfaction with lower productivity, absenteeism, high turnover, and increased personnel costs, which are similar to the effects of stress on personnel (Brough, 2003; Chalofsy, 2003; Judge, et al., 2001). The research has also found many variables contributing to job satisfaction, including personal characteristics, organizational behaviors, and cultural norms and values (Brough & Pears, 2004; Smerek & Peterson, 2007).

Theories of Job Satisfaction

According to Miner (2002), job satisfaction theory is related to motivational theory because job satisfaction is presumed to increase the motivation to perform. The theories of job satisfaction attempt to explain the factors leading to job satisfaction and use three general approaches. The first type of job satisfaction theory is based on the premise that the characteristics of the job form the primary influence on job satisfaction, although it can be moderated by individual and organizational variables. In this general approach, the employee is presumed to make a cognitive appraisal of the characteristics of the job and the organization to assess whether the job meets the personal needs. The second theoretical approach uses social information processing theory as a foundation, which presumes that social relationships influence employees' perceptions about job satisfaction (Pfeffer & Salancik, 1978). The third theoretical approach adopts an internal perspective, examining whether psychological or dispositional factors determine whether employees are satisfied with their jobs (Locke, 1976). Some theories such as Herzberg's two-factor theory attempt to use several approaches to explain a wider range of variables related to job satisfaction (Herzberg, 2003; Herzberg, Mausner, & Snyderman, 1959).

Another approach to the classification of the theories of job satisfaction examines whether they us a content premise or a process premise (Sahibzada, et al, 2005). The content theories rely on a model in which the work environment and conditions must meet a fixed set of needs for the employee. If the work environment meets the needs, job satisfaction increases. Content theories include the two-factor theory (Herzberg, 2003; Herzberg, Mausner, & Snyderman, 1959) and the range of affect theory (Locke, 1976). The process theories rely on a model in which the individual continually interacts with

the work environment, producing changes in needs and expectations moderated by personality characteristics. The social information processing theory of Pfeffer and Salancik's (1978) is a process theory.

The earliest research investigating job satisfaction presumed that external or organizational factors were responsible for determining whether employees were satisfied with their jobs (Miner, 2002). This assumption coupled with the findings of researchers led to the development of the job characteristics theory of job satisfaction. In this model, factors such as working conditions or compensation influenced job satisfaction. Increasing compensation or benefits or improving the specific work environment would increase job satisfaction and productivity. The increase in productivity would justify the additional expenses the organization incurred for improving the general work environment. Research based on the job characteristics model, however, determined that job characteristics did not fully influence job satisfaction. The Hawthorne Studies conducted during the 1920s and 1930s, for example, suggested that social factors could contribute to job satisfaction (Miner, 2002). Research findings also suggested that factors internal to the individual also played a role in job satisfaction, which accounted for the differences in job satisfaction among employees in the same workforce.

The dual-factor theory of job satisfaction developed by Herzberg, Mausner and Snyderman (1959) provided a unified explanation for the influence on job satisfaction from both the external factors in the environment and the internal factors specific to the individual. The theory was the outcome of research suggesting that some environmental factors had a strong influence on decreasing job satisfaction, and were termed hygiene factors. At the same time, some internal factors had a strong influence on increasing job

satisfaction, and were called motivators. In research to support the validity of the two-factor theory, Herzberg, Mausner and Snyderman identified specific variables in both the hygiene factor and motivator group. The motivator variables were recognition, a sense of achievement, responsibility, opportunity for advancement, the opportunity for personal growth, and the nature of the work. These factors were related to the higher order needs of employees. The hygiene factor variables were compensation, amount of supervision, physical work environment, relationships with supervisors, and relationships with coworkers. These factors were related to the physical needs of the employees.

In this theory, the hygiene factors and motivators do not have opposing influences on job satisfaction (Miner, 2002). Job satisfaction decreases when the employee perceives inadequacy in the hygiene factors. If the employee perceives the hygiene factors as adequate, however, further improvements do not produce an increase in job satisfaction. Conversely, the absence of motivators will not reduce job satisfaction. The use of motivators will improve job satisfaction. In this theoretical model, motivators and hygiene factors were not opposites of each other. Adjustments by an organization to hygiene factors did not necessarily lead to higher job satisfaction among employees. To improve job satisfaction, the organization had to offer the employees hygiene factors perceived as adequate and motivational factors meeting the higher order needs of the employees (Herzberg, 2003).

In this theory, stress could be classified as a hygiene factor. Stressors operate as a hygiene factor when the work environment contains many sources of stress the employee is unable to control. Hygiene factors represent physical needs that must be met to maintain job satisfaction and include the perception of a safe work environment under the

control of the employee (Smerek & Peterson, 2007). Although the employee's internal perception of the stressor controls the specific response of the individual, job satisfaction can decrease when the employee perceives the environment is highly stressful. Conversely, the elimination of excessive stressors in the environment will not necessarily result in higher job satisfaction.

Subsequent research relying on the two-factor theory has established its general validity of the fundamental concepts of the theory distinguishing different effects on job satisfaction from hygiene factors and motivators. The research, however, has also identified complex relationships among the factors reducing the ability to use the theory to predict outcomes (Herzberg, 2003; Miner, 2002). The findings of some studies also indicated the possibility of overlap between some hygiene factors and motivators, with difficulties classifying variables (Smerek & Peterson, 2007). Despite these shortcomings, the dual-factor theory is the model that researchers use most frequently when investigating job satisfaction (Chalofsky, 2003).

Research relying on the two-factor theory provides support for the fundamental premise of the two-factor theory suggesting job satisfaction increases when the organization satisfies the higher order needs of the individual. One of these needs is autonomy, which is related to stress because it involves the employees' perception of their ability to control their environment. Kim (2002) conducted an investigation of the relationship between job satisfaction and participation in the decision-making process in the workplace among employees in pubic service agencies. The findings of the study identified a positive relationship between the perception of greater autonomy through participation in decision making and job satisfaction. Konrad, et al. (2005) conducted a

survey of managers in middle career stage to identify relationships between job satisfaction and benefits related to autonomy such as flex time work schedules. The benefits provided by an organization are a hygiene factor because they shape the general work environment. The findings of the study found a positive correlation between flex-time benefits and job satisfaction among employees with significant family responsibilities. Sahibzada, et al. (2005) also found a positive correlation between workplace supports allowing employees to meet family obligations and higher job satisfaction. The findings of these studies based on the two-factor theory suggest the organization can improve job satisfaction by using methods to increase employees' perception of autonomy and ability to control some aspects of their work environment. The research identifying a relationship between perception of control and job satisfaction are also similar to the research identifying a relationship between perception of control and stress (Pomaki & Anagnostopoulos, 2003;Theorell & Karasek, 1996).

The range of affect theory initially proposed by Locke (1976) is another theoretical model of job satisfaction. In range of affect theory, employees continuously evaluate many factors to determine if their job meets their expectations. Some factors may be objective such as the amount of compensation or the number of required work hours. Some factors may be subjective such as the ability to develop professionally or the perceived relationships with coworkers and supervisors. The evaluation is based on a process identified as "have-want," which attempts to balance the ability of the job to fulfill the desires of the employees. In this context, the wants of the employee include both lower order needs such as safety and higher order needs such as the desires for recognition (McFarlin, et al., 1995). The employee experiences job satisfaction if the

wants are aligned with the employees' perception of the ability of the job to meet the wants. In this theory, employees vary substantially in the value they place on different factors related to the job. Investigations of job satisfaction using the range of affect theory indicated there are substantial differences in the factors employee consider when assessing their jobs and the relative value placed on the factors. The variation creates difficulties for employers developing strategies to improve job satisfaction (Miner, 2002). Nonetheless, research has validated the fundamental premise of the theory, which contends job satisfaction will improve when there is greater congruence between the perceived wants of the employee and the ability of the job to fulfill the wants (McFarlin, et al. 1995).

Pfeffer and Salancik's (1978) social information processing theory is another approach to explain job satisfaction. In this theory, employees create a social construct of the job, which is a subjective assessment of many factors such as compensation, environment, and relationships with others. Communications among employees and from the organization influence the content of the social construct. The employees form attitudes about the job from the communications they receive, processing the information obtained from their social environment. If the information the employees receive from their social environment is positive, job satisfaction increases. Investigations of social information processing theory validated the role of social factors for influencing job satisfaction. The research, however, also identified many other factors influencing job satisfaction including the characteristics of the job and the nature of the task environment (Miner, 2002).

Research investigating the effect of the employee's perception of the ethics or morality of an organization on job satisfaction provides some support for social information processing theory (McIntyre, et al. 2002). If employees perceive the organization is unfair or engages in unethical behaviors, job satisfaction decreases. The values and norms used to assess the ethics of the organization come from social interactions internal and external to the organization. When the employees in the organization have close social bonds, the employee's loyalty shifts from the organization to the work group. In this situation, the relationship between a negative perception of organizational ethics and job dissatisfaction weakens.

A more recent theoretical approach to job satisfaction focuses on the internal factors of the individual as the primary determinant of job satisfaction (Wegge et al., 2007). As a result, differences in personality account for variation in job satisfaction among employees and the differences in responses among employees to organizational efforts to improve job satisfaction. The theory also suggests that employees with a positive or optimistic affect tend to have high job satisfaction levels over the long run despite changes to organizational factors such as compensation or opportunity for advancement. In contrast, employees with a negative or pessimistic affect are more likely to have low job satisfaction regardless of the efforts of the organization to improve job satisfaction. The theory implies that job satisfaction is beyond the control of the organization, and higher job satisfaction among employees can be achieved only by recruiting employees with a positive affect. Some research supports this theory, indicating that personality is related to job (Williamson, Pemberton, & Lounsbury, 2005).

Other studies, however, have found that personality factors accounted for only some of the variation in job satisfaction (Judge, et al., 2001).

Job Satisfaction among Public Safety Personnel

Research examining the factors relating to job satisfaction among public safety personnel has identified hygiene factors as responsible for low job satisfaction (Bowler, 2005; Brough, 2004; Ortega, Brenner, & Leather, 2007). The organizations employing the personnel establish policies and practices reducing job satisfaction. There is also some evidence that the organizations fail to provide public safety personnel with sufficient motivators (Bowman, et al., 2006). The research investigating job satisfaction among public safety personnel generally suggests that the administrative practices of the organization are more significant for job satisfaction than the inherent dangers or stress of public safety work.

Brough (2004) conducted a comparative investigation of the predictors of job satisfaction among police, fire and ambulance emergency personnel based on the assumption all emergency personnel experience a similar level of stress. The investigation used a survey methodology to identify the stress factor that impact emergency workers. The findings indicated the perception of a high level of organizational and operational bureaucracy was correlated with a higher level of work and family conflicts among emergency workers. In addition, a correlation existed between the perception of a high level of organizational and operational bureaucracy and low levels of job satisfaction. The findings also showed statistically significant differences among police, fire and ambulance emergency service personnel. Police reported lower job satisfaction and stress from organizational policies than fire and

ambulance personnel. The ambulance personnel had the highest level of job satisfaction. The findings imply that the organizational structure and administrative procedures are a significant source of stress for emergency workers, which are findings similar to effects of stress on public safety personnel found by Miller (2007) and Stetz, Stetz, and Blaise (2007). Bough (2004), however, investigated emergency workers in New Zealand, with the possibility that the findings cannot be generalized to other nations.

Although the primary purpose of the study conducted by Ortega, Brenner and Leather (2007) was to examine the effect of stress on organizational commitment among police officers, the research also involved the collection of data about job satisfaction. The analysis of the data showed a significant negative correlation between interpersonal conflicts and job satisfaction. Bowler (2005) identified the perception of racial discord within a police department as a source of interpersonal conflicts leading to lower job satisfaction. The findings of the studies of Ortega, Brenner and Leather (2007) and Bowler (2005) suggest conflict with coworkers and supervisors is a hygiene factor because it can reduce job satisfaction among police officers.

Kohan and O'Connor (2002) examined the relationships among affect, stress, job satisfaction, and alcohol consumption among police officers. The research relied on Locke's (1976) range of affect theory using a model in which negative or positive affect was the independent variable and stress and job satisfaction were dependent variables presumed not to interact with each other. Alcohol consumption was a moderating variable. The researchers collected data using a survey questionnaire from a study population consisting of 122 police officers in a single geographic region. The findings of the study showed a correlation between police officers with positive affect and job

satisfaction. The findings also identified a correlation between negative affect and stress. The use of alcohol was more prevalent among police officers with a negative affect and high stress. In addition, the use of alcohol among police officers with a positive affect did not moderate job satisfaction. The conclusions of this study imply that personality characteristics account for a large amount of the variation in job satisfaction among police officers. The conclusions may be consistent with the findings of Ortega, Brenner and Leather (2007) if negative affect is a factor contributing to interpersonal conflicts. The relationship between affect and social variables among public safety personnel, however, was not addressed in the studies investigating job satisfaction.

Brough and Pears (2004) examined the relationship between informal support and job satisfaction among public safety personnel. The theoretical model used in the study envisioned the perception of supervisor support as a mediating variable between occupational stressors and job satisfaction. Sources of support were colleagues and supervisors. Support consisted of the two components of practical support defined as advice or resources and emotional support defined as demonstrating concern. Both colleagues and supervisors were sources of support in the organization. The findings of the study showed a significant correlation between support received from supervisors and job satisfaction, but no correlation between support received from colleagues and job satisfaction. The findings also showed the correlation between supervisor support and job satisfaction was significant only for practical support. The researchers concluded that employees prefer to engage in practical problem-solving behaviors to address work problems, with practical support more likely to result in problem resolution and improved job satisfaction. The conclusions of the study extend the findings of Thompson, Kirk, and

Brown (2005), which identified social supports as significant factors for reducing stress among public safety personnel, by identifying social support as a factor influencing job satisfaction.

Bowman, et al. (2006) identified perception of inequity in compensation and rewards systems as important factors in reducing job satisfaction among police officers who seek alternative employment in other law enforcement agencies. The police officers were dissatisfied with the compensation they received in their current position. Because perception of compensation adequacy is a hygiene factor, the police officers had low job satisfaction. In addition, the police officers believed the department did not provide adequate opportunities for advancement and did not recognize or reward achievement. These factors are motivators, which could have improved job satisfaction. The low job satisfaction influenced the police officers to form a turnover intention, which they acted on when they obtained an opportunity for employment in another organization offering higher compensation and the opportunity for advancement based on performance. The findings of Bowman, et al. (2006) suggest both hygiene factors and motivators influence job satisfaction among public safety personnel.

Public Safety Departments, Training and Cross-Training

Public Safety Departments

An emerging trend among municipalities is to consolidate the police, fire and EM services into a single PSD (Matarese et al, 2007). The PSD concept involves fire, police and emergency medical personnel routinely working together in emergency situations. Implementation of the PSD approach requires integration of task functions with police, fire and EM personnel expected to perform all public safety tasks in addition to their

specific functions. As a result, the PSD does not only involve the administrative consolidation of the various departments as an effort to reduce costs, but also the cross-training of personnel to ensure that public safety personnel can assist each other in the performance of tasks. In the PSD model, fire, police and emergency medical personnel remain specialists in their respective tasks. The cross-training, however, allows some degree of generalization in the overall public safety functions. This approach is intended to create greater flexibility in the ability to allocate personnel to deal with public safety emergencies by allowing the generalists in the public safety field to provide support as necessary to the specialists (Matarese et al, 2007). The PSD also provides a greater degree of unity of command in responding to emergency situations.

Training

Research suggests stress training may be effective in reducing stress among employees in organizations in which tasks are inherently stressful such as a PSD (Driskell, Johnston, & Salas, 2001; Salas, Bowers, & Eden, 2001). Stress training attempts to simulate the situations producing stress an employee is likely to encounter when performing routine tasks and the unexpected situations or events occurring only rarely. By learning how to respond to stressors in a controlled training setting, the employee theoretically experiences less stress in the actual operating environment. Salas, Bowers and Eden (2001) distinguished stress training from other types of training. Stress training is intended to teach specific responses to situations likely to produce stress while other types of training focuses on teaching specific functional skills necessary to perform a task. Stress training can be informational by providing data about various anticipated situations or behavioral by providing guidance about how the employee should respond

to the situation. Stress training can be incorporated into any training curriculum. The training must be specific for situations employees encounter by addressing "the specific stress and task components that are likely to be encountered by the trainee" (Driskell, Johnston, & Salas, 2001: 100). The stress training is most effective when it is based on task analysis and contains components related to the situations employees will encounter in their operational environment. Evidence also exists indicating stress training based on task analysis and situations likely to occur in the task environment reduces stress when the employee encounters novel situations not considered during the stress training (Driskell, Johnston, & Salas, 2001; Miller, 2007). .

Some research has examined the relationship between training and job satisfaction among public safety personnel. Owens (2006) examined the relationship between training and job satisfaction among managers in different types of public agencies and found a positive correlation between training and higher job satisfaction. The research operationalized the concept of training by determining whether a study participant had received more than six months of training in communications skills and organizational policies and procedures. While the findings of the study indicated that training improved job satisfaction, it also identified perceptions of organizational justice as a mediating variable. When the participants had a negative perception of organizational justice, training had a weaker correlation with job satisfaction. Based on the findings, Owens (2006) concluded that training improved job satisfaction by providing employees with skills necessary to perform their jobs, reducing uncertainty. Bowman, et al., (2006) performed qualitative research to identify the factors inducing police officers to leave local departments for employment with federal law enforcement agencies. The findings

showed insufficient training was a factor reducing job satisfaction. The specific deficiencies noted by the police officers were in non-functional training, which included programs to increase their understanding of the rationale and application of policies and procedures.

Traut, Larson and Feimer (2002) conducted a study designed to examine the relationship between training and job satisfaction among firefighters. The theoretical premise underlying the study was training enhances performance skills and relationships with coworkers and supervisors, thereby improving job satisfaction. The data for the study, however, were collected from a fire department in only one city, with no controls used for specific organizational variables influencing job satisfaction. The findings showed a positive correlation between training and job satisfaction, and a negative correlation between tenure and job satisfaction. The findings supported the conclusion that the training received by fire personnel in the early part of their career improved job satisfaction. Employees with longer tenure in the fire department received less training and therefore had lower job satisfaction.

Cross-Training

Cross-training refers to a strategy in which each member of a team receives training on the tasks, duties and functions of other members of the team (Volpe, et al., 1996). The rationale for cross-training is generally functional and intended to enable any member of the team to assume the functions of other team members to provide assistance or to replace a team member who is not able to perform the expected functions. Previous research, however, has not extensively examined the collateral effects of cross-training on stress or job satisfaction, or its effect on public safety personnel in a consolidated

PSD. Related research in other types of organizations, however, had identified some of the general effects of cross-training.

McCann et al. (2000) examined the effect of cross-training on the decision-making of team members engaged in a military naval surveillance task. Each member of the team had different functional task specialties for which they had received primary training. While the tasks differed, they were fundamentally related by requiring use of electronic equipment. The team members routinely worked together performing their specific tasks to contribute to the general task of surveillance. Subjects participating in the study received cross-training in the specific tasks performed by other team members while a control group did not receive the cross training. The study group receiving the cross-training performed the general surveillance task more efficiently when experiencing time pressure for task completion. The researchers concluded from the findings that the cross-training created greater cohesion among the coworkers on the team, which fostered closer cooperation and efficiency when dealing with the constraint produced by time pressure. In addition, the cross-training increased the range of possible responses by the members of the team when confronted with unexpected events creating difficulties with completing tasks.

While the research of McCann et al. (2000) was directly related to task efficiency, the findings imply that cross-training may have some value for reducing stress by promoting cooperation among coworkers. Cooperation among coworkers is a social support related to stress reduction among public safety personnel (Miller, 2007; Thompson, Kirk, & Brown, 2006). The effect of cross-training of increasing in range of possible responses for individuals in the team when confronted with unexpected

situations removes some of the organizational constraints based on assigned roles and functions. In practice, the individuals responsible for the task can allocate task responsibility in accordance with situational requirements. As a result, cross-training could reduce stress by eliminating some organizational constraints (Stetz, Stetz, & Blaise, 2006) and increase job satisfaction by granting additional autonomy to employees (Kim, 2002).

Implications of the Literature

The literature generally implies that the public safety department produces many of the stressors and factors negatively influencing job satisfaction through organizational policies and procedures. Some theories suggest stress results from the perception of lack of control over both the environmental factors producing stressors and the potential responses to the stressors (Pomaki & Anagnostopoulos, 2003). Public safety work routinely places personnel in dangerous or demanding situations, with employees constantly exposed to environmental stressors (Brough, 2004). The responses to the situations, however, are constrained by the organization's formal policies and procedures and the informal social relationship with coworkers and supervisors (Stetz, Stetz, & Blaise, 2006). The organization can also create stressors compounding the effect of the stressors public safety personnel encounter when performing functional tasks (Miller, 2007; Thompson, Kirk, & Brown, 2005).

The literature investigating stress among public safety personnel has also pursued two separate but related strands of inquiry. The fist strand of research focused on the effect of traumatic events on public safety personnel (Regehr et al., 2007). Public safety personnel may expect the event to occur because of the nature of the work, but the event

nonetheless produces substantial stress having an enduring emotional impact resulting in PTSD (Haisch & Meyers, 2004). The literature generally suggests public safety personnel with PTSD are often responsible for developing personal coping mechanisms with relatively little support from the organization or informal support from supervisors and peers (Ireland, Malouff, & Byrne, 2007; McCaslin et al., 2006). The second strand of research focused on the cumulative effect of organizational and environmental stressors on public safety personnel. Cumulative stress is more likely to lead to burnout among public safety personnel (Baker & Williams, 2001). Burnout is common among public safety personnel because they routinely interact with troubled populations (Euwema, Kopt, & Bakker, 2004).

The literature indicated burnout among public safety personnel can result in undesirable behaviors such as an increase in aggressiveness when dealing with the public (Tomei, et al., 2006). It can also have negative effects on the organization including higher absenteeism and turnover rates (Johnson, Todd, & Subramanian, 2005). While previous research has examined the factors contributing to burnout among public safety personnel, there has not been investigation of the strategies organizations can use to reduce the incidence of burnout.

The literature also implies that job satisfaction is a construct related to stress and burnout, but the direction and magnitude of the relationship is not clear. Research findings generally indicate that the organizational factors contributing to high stress among public safety personnel also contribute to low job satisfaction (Brough, 2004). These findings provide support for the two-factor theory of job satisfaction proposed by Herzberg, Mausner, and Snyderman (1959), which indicated environmental factors such

as stress can contribute to low job satisfaction. Pines and Kim (2005), however, argued that the constructs of stress and job satisfaction are separate and unrelated, although they share common antecedents. Investigations of job satisfaction among public safety personnel also indicate personality variables such as affect can moderate the effect of organizational factors (Kohan & O'Connor, 2002). Some common antecedents of stress and job satisfaction found in the literature are relationships with coworkers and supervisors (Thompson, Kirk, & Brown, 2005), and organizational policies and constraints (Miller, 2007).

The research also generally suggests training can have a moderating effect on stress and job satisfaction among public safety personnel. Stress training is designed to simulate the stress-producing situations, improving the coping skills of personnel when they encounter the situation (Driskell, Johnston, & Salas, 2001; Salas, Bowers, & Eden, 2001). Training may also improve job satisfaction by improving skills and reducing uncertainty (Owen, 2006).

The literature contains several implications for stress and job satisfaction among organizations adopting the PSD operational and administrative structure. One of the variables identified in the literature associated with stress involves perceived control over the elements of the environment that produce stressors (Pomaki & Anagnostopoulos, 2003; Thorell & Karasek, 1996). In the traditional public safety organizational structure using separate departments for police, fire and EM personnel, the degree of control over the environmental stressors permitted for personnel can vary according to the policies and procedures of each department. The PSD, however, is likely to use a unified policy with respect to the degree of autonomy and control of all public safety workers regardless of

their specialized function. In a PSD, fire and EM personnel must adopt the constraints on behavior used by police personnel. The PSD approach can result in lower control over environmental stressors than the fire and EM personnel may be accustomed to. Because of the changes in autonomy inherent in the PSD model, it may increase the stress of some personnel.

In the burnout model of stress, the employee gradually develops a high level of stress from working with troubled populations for an extended period (Kickul & Poisig, 2001). Burnout theory is based on the premise that stress is caused by the nature of the relationship between public service personnel and troubled populations, with the stressors beyond the control of the service provider (Dollard, Winefield, & Dollard, 2003). In the traditional approach to public safety organization, the highest level of stress is likely to occur with police, who deal with chronically troubled populations to a greater extent than fire and emergency medical service providers (Euwema, Kopt, & Bakker, 2004; Johnson, Todd, & Subramanian, 2005; Thompson, Kirk, & Brown, 2005). The higher rate of stress and burnout and police suggests the PSD approach may increase the rate of burnout among fire and EM personnel increasing the amount of contact with chronically troubled populations.

Although the literature implies the PSD may create additional stress for personnel increasing the risk of burnout, the literature also suggests cross-training may be a strategy reducing stress for personnel in a PSD. The literature suggests that the skill sets of individuals are a factor in the ability to develop coping strategies to reduce stress (Iwaseki et al, 2002). In the traditional segmented approach to emergency services, personnel have skills limited to their functional areas of police, fire and EM services. The

use of the PSD model, however, raises the possibility that cross-training can expand the skills of the service providers by providing them with more knowledge regarding the way in which they can exercise control over their environment. The issue of whether cross-training of personnel can assist in controlling the environmental stressors has not been extensively investigated in the literature. Previous research, however, has determined that cross training can improve task efficiency by increasing cohesion among team members (McCann, et al., 2000). In addition, previous research suggests stress training can reduce the stress experienced by public safety personnel (Driskell, Johnston, & Salas, 2001; Salas, Bowers, & Eden, 2001). The findings of previous studies imply that cross-training could have an effect on stress and job satisfaction among public service personnel.

Summary of the Literature Review

No single theory fully explains occupational stress (Dollard, Winefield, & Winefield, 2004)In the demand control theory of stress, the nature of the environment determines the degree that individuals can use coping mechanisms to reduce the effect of stressors (Pomaki & Anagnostopoulos, 2003). The theory is relevant to the public safety environment because the agency employing personnel establishes the boundaries for possible responses to the environmental stressors encountered as an inherent part of the job. Burnout theory is derived from general stress theories and attempts to identify the causes of a specific reaction to chronic stress associated with depression, withdrawal and a sense of futility (Euwema, Kopt, & Bakker, 2004). In this theory, individuals in occupations dealing with troubled populations are more likely to experience the chronic stress leading to burnout (Kickul & Poisig, 2001).

Although all public safety personnel deal with troubled populations, research investigating stress and burnout has focused primarily on police (Euwema, Kopt, & Bakker, 2004; Johnson, Todd, & Subramanian, 2005; Thompson, Kirk, & Brown, 2005) with few studies examining burnout among fire and EM personnel (Del Ben, et al., 2006; Robbers & Jenkins, 2005). Burnout can be related to both a traumatic incident producing stress (Regehr et al., 2007) and cumulative stress from routine exposure to stress in the organization and the field operating environment (Baker & Williams, 2001). Burnout can result in physiological symptoms such as increased cortisol levels (Regehr, et al., 2007), and behavioral changes such as increased aggressiveness (Euwema, Kopt, & Bakker, 2004; Tomei, et al., 2006) or alexthemia (McCaslin, et al., 2006).

The literature identified stress training as a strategy used by some public safety organizations to reduce stress from PTSD (Driskell, Johnston, & Salas, 2001; Salas, Bowers, & Eden, 2001). The stress training may also be effective in reducing the incidence of burnout for public safety personnel with PTSD (Salas, Bowers, & Eden, 2001). Another coping strategy is private diary writing (Ireland, Malouff, & Byrne 2007). Many public service personnel, however, use dysfunctional coping strategies related to avoidance, including alcohol consumption (Kohan & O'Connor, 2002; Pomaki & Anagnostopoulos, 2003).

The dominant theory of job satisfaction is the two factor theory of Herzberg, Mausner, and Snyderman (1959), which postulates the existence of hygiene factors reducing job satisfaction and motivator factors increasing job satisfaction. The research investigating job satisfaction among public safety personnel has identified hygiene factors reducing satisfaction including organizational bureaucracy (Brough, 2004),

interpersonal conflicts (Ortega, Brenner, & Leather, 2007), and informal social supports (Brough & Pears, 2004). The relationship between job satisfaction and stress, however, is uncertain because of the possibility they share common antecedents (Brough & Pears, 2004).

The findings of previous research suggests training may have a moderating effect on stress and job satisfaction (Driskell, Johnston, & Salas, 2001; Owens, 2006; Salas, Bowers, & Eden, 2001). Cross-training, however, has been investigated only in the context of effects on productivity (Traut, Larson, & Feimer, 2002). The findings of this study suggest cross-training could possibly reduce stress by improving cooperation among coworkers with different functional specialties.

The next chapter discusses the methodology used to investigate the effect of cross-training on burnout and job satisfaction among cross-trained public safety personnel in PSDs. The chapter describes the methodological approach, the instruments, and the method used to collect data from the sample population. The chapter also discuses the procedure used for data analysis and the validity of the instruments.

This research focus of this study was the effect of cross-training on burnout and job satisfaction among police, fire, and EMS personnel in PSDs compared to personnel in segregated police, fire, and EMS departments. Data gathered in this study is support or reject three hypotheses of the study:

H-1; Police, fire, and EMS line personnel in cross-trained PSDs experience differences in burnout than police, fire, and EMS personnel in traditional public safety departments that are not cross-trained.

H-2; Police, fire, and EMS line personnel in cross-trained PSDs experience differences in job satisfaction than police, fire, and EMS personnel in traditional public safety departments that are not cross-trained.

CHAPTER 3: METHODOLOGY

The purpose of this quantitative, correlational study was to statistically compare burnout and job satisfaction among public safety employees in PSDs with cross-training in police, fire fighting and EMS duties with public safety employees trained only in their functional task specialty. A quantitative research design is appropriate for investigations in which the variables can be measured and a sequential relationship exists among the variables (Cresswell, 2003). The sample population consisted of active duty police, fire and EMS personnel in three states from both PSDs using cross-training and traditional segregated departments not using cross-training. Data were collected with a survey questionnaire developed for the study, with the data analyzed using ANOVA and ordinarily least squares multiple regression. The independent variable in the study was cross-training by a PSD, and the independent variables were job satisfaction and burnout. Demographic factors were used as control variables.

Research Method and Appropriateness of the Design

To test the relationship between cross training, job satisfaction and burnout, the study used a correlational research design with ANOVA and multiple regression. A quantitative research method is appropriate when the objective of the research is to test the relationships among dependent, independent, and moderating variables. The quantitative approach is also appropriate when the variables are measurable because the approach gathers and analyzes numerical data (Cresswell, 2003). Quantitative measures can be developed for burnout and job satisfaction to assess the effect of cross-training on the variables. The quantitative approach is also appropriate when a temporal or sequential order exists in the relationships among the variables, with the independent variables

preceding the dependent variables (Cresswell, 2003). The variables tested in the study were measurable, with information about the variables quantifiable through the use of a survey questionnaire containing ordinal measures for the data. The theoretical model developed to support the research also assumed a temporal and sequential order for the variables. The independent variable of cross-training preceded the dependent variables of job satisfaction and burnout.

The quantitative research approach relies on the positivist research paradigm, and uses deductive reasoning to derive the hypothesis from stress theory. The data analysis used numerical data. In positivist research philosophy, the hypotheses establish the boundaries for the investigation, with the data collected for the specific purpose of testing the hypotheses. The positivist paradigm also presumes the existence of an objective reality common to all individuals in similar situations or circumstances (Newman & Benz, 1998). Because of the assumption, a relationship identified in the sample population can be generalized to a larger population. The ability to generalize the findings, however, is contingent on using an appropriate sampling procedure and a sufficiently large sample population (Newman & Benz, 1998).

Sample Population

The study population consisted of active duty police, fire and EMS personnel in the United States, which is a large population of unknown size. The sample population was limited to police, fire, EMS and cross-trained public safety officers (PSO) personnel in only three states to limit the scope and the costs of the study. The inclusion criteria for the study population were police, fire, EMS, and PSO personnel, employed full time, and with more than one year of experience. The inclusion criterion of full-time employment

was intended to reduce the possibility of volunteer or part-time personnel skewing the findings of the study. The inclusion criterion of more than one year of experience was intended to eliminate newly hired personnel who were not thoroughly familiar with organizational factors such as administrative procedures. The respondents came from eight (8) cities in three (3) states.

The total number of respondents participating in the study and returning usable questionnaires was 210. Based on the Central Limit Theorem, the repeated sampling of a population will produce an average of the tested attribute representative of the total population, which is necessary to support the ability to generalize the findings. However, the Central Limits Theorem is also based on probability or random sample Since the sampling strategy used in this study was based on convenience, strictly speaking, the use of inferential statistics and significance tests is inappropriate. Nonetheless, I used significance tests to ascertain whether the associations between variables would have been determined to be significant if I had used a random sample.

Although I did not have a random sample, I adopted the confidence level of 95% for the analysis of the data produced by the survey questionnaire. Based on the Central Limit Theorem, the random sampling of 210 respondents would produce a confidence interval of approximately 7 at a confidence level of 95%. A confidence level of 95% and a confidence interval of 7 suggest that among the entire population of public service personnel, the unknown true population values on the measured variables would fall within a range of +/- 7%, the sample mean 95 times out of 100. In other words, if I had used random sampling, the true mean of the population would be 1/-7% from the means found for scores in this study with 95% certainty.

The sample included 52 respondents from emergency services departments with cross-training personnel and 146 respondents from emergency services departments in which personnel were not cross-trained.

Purposeful sampling was used to select the departments with emergency services personnel solicited for participation in the study. The purposeful sampling method selecting the departments was intended to ensure the study produced sufficient data from departments that use cross-training and from departments using the traditional method of training only in the specific police, fire and EMS functions. The inclusion criterion was emergency services departments from cities with populations less than 75,000, which was intended to reduce the possibility that the size of the department would act as confounding variable. Larger emergency service departments from cities with populations greater than 75,000 often have many administrative layers that can influence job satisfaction. In addition, larger departments may have different facilities for police, fire and EMS personnel, creating a barrier to implementing cross-training approaches. In addition, emergency service departments from larger cities may have extensive training resources not available to smaller cities and departments. The emergency departments meeting the inclusion criterion for the study were categorized as either a cross-training or traditional department based on data collected directly from administrators in the identified cities. The departments in each category were placed in order of size of city. The administrators of the departments were solicited for participation in the study based on city size and category. After obtaining the agreement of the administrators for departmental participation, the survey questionnaire was disseminated to the members of the department. The purposeful sampling procedure created the possibility the findings of

the study were subject to self-selection bias because some departments meeting the inclusion criteria for the study elected not to participate.

Data Collection Procedure

After securing permission from the public safety departments meeting the inclusion criteria for the study, the survey questionnaire was disseminated to the police, fire and EMS employees of the department by mail. The prospective participants for the study were identified through the directories provided by the public safety department at the time the department agreed to allow employees to participate in the study. The mailed questionnaires were addressed to individual employees at the department. The survey questionnaires were accompanied by a letter explaining the purpose of the study and a stamped self-addressed envelope for the return of the completed questionnaires. The explanatory letter contained assurances that the researcher would maintain the confidentiality of the participants and outlined the measures to protect confidentiality. To estimate the effect of self-selection bias on the findings of the study, a record was made of the number of individuals solicited for participation in the study and the number of returned usable survey questionnaires. A total of 436 questionnaires were disseminated to participants, with 210 usable questionnaires, returned yielding a response rate of 48.1%. This response rate was deemed acceptable for a study of this nature. It is not possible, however, to rule out non-response bias.

Participation in the study did not pose any risk of physical or psychological harm to the individuals in the sample population. Participation in the study, however, posed a risk to the participants from breach of confidentiality. The data obtained in the survey questionnaire contained information about the perceptions of public safety personnel

about their work environment, including their supervisors. Disclosure of the data could result in reprisals from supervisors or administrators. In addition, disclosure of the data could adversely affect the public image of emergency service departments. To preserve the confidentiality of the participants and the departments participating in the study, the survey questionnaires and return envelopes were not coded or marked in any way indicating the identity of the participants. Therefore, the surveys were anonymous. Nonetheless, the participants also received assurances of confidentially to encourage forthright answers to the survey questions. The completed survey questionnaires were kept in a secure and locked location accessible only to the researcher and were destroyed after completing the data analysis. The participants in the study were also informed they could receive a summary of the findings of the study after its completion by contacting the researcher. The public service departments agreeing to participate in the study also requested the states in which they were located not be identified in the study as a further assurance the department and its personnel could not be identified.

Instrument

The data gathering instrument used in the study was a modified form of the Satisfaction Questionnaire developed by Stamps (1997), which has been assessed for reliability and validity in previous studies. Because the questionnaire was originally developed for use in nursing practice, it was necessary to make modifications to the instrument for use in this study in a population of emergency service personnel. The questionnaire consisted of two sections (see Appendix A). The first section obtained demographic information from the respondents that includes gender, seniority in the position, education, and size of the city in which the department is located. In addition, it

asks the respondents their emergency service specialty and to note whether they have been cross-trained in other emergency service functions. In addition, the first section of the survey questionnaire obtains data about the independent variable of the use of cross-training in the emergency services department. The second section of the survey questionnaire uses a seven-point Likert-like scale asking the respondents to rate their level of agreement with various statements about their perceptions of their jobs. Questions 1 through 45 of the survey questionnaire were designed to elicit information on various domains that can potentially impact job satisfaction such as perceptions of compensation, autonomy, and relationships with peers and supervisors. The aggregate score produced by these questions is an overall indicator of job satisfaction. Because of the large number of questions in the survey, the questions were grouped by the constructs identified by the two factor theory of job satisfaction. The five motivator constructs related to improving job satisfaction are achievement, recognition, nature of the work, autonomy and advancement. The five hygiene factors leading to job dissatisfaction if employees do not perceive the factor as adequate are administration, policy, relationship with supervisors, compensation, and interpersonal relationships. Questions 45 through 60 gathered information about the factors or symptoms associated with burnout. Table 1 contains a summary of the questions related to the job satisfaction and the constructs used in the survey questionnaire.

Table 1

Constructs Measured by the Survey Questionnaire

Variable	Question Number
Job Satisfaction: Achievement	6,21,23,
Job Satisfaction: Recognition	4,27
Job Satisfaction: Nature of the Work	2,3,13,28,19,328,32,37,41,43
Job Satisfaction: Autonomy	10,17,26,38
Job Satisfaction: Advancement	34
Job Dissatisfaction: Administration	7,22,25,39,40,42
Job Dissatisfaction: Policy	8,16,24
Job Dissatisfaction: Relationship with Supervisors	11,29,30,35
Job Dissatisfaction: Compensation	1,9,12,20,31,44
Job Dissatisfaction: Interpersonal Relationship	5,14,15,33,36
Burnout	45-60
Demographics	Section 1

A test produced by the pilot study of Cronbach's alpha was conducted for all the respondents. During the initial analysis, some items were found to reflect negatively on the inter-item correlation. Items in the scale were re-evaluated and those that were found to cause the negativity were reverse coded and the scale was reanalyzed, producing a positive results.

The survey questionnaire was administered to these participants using the method established for the collection of data for the study. An internal consistency approach based on Cronbach's alpha was used to determine the reliability of the instrument (Santos, 1999). The analysis of the reliability of the survey questionnaire instrument using the data set produced by the study was based on the assessment of each of the constructs listed in Table 1, with the exception of the demographic variables not related to the consistency of the perceptual constructs contained in the survey questionnaire.

Table 2 presents the results of the analysis of the survey questionnaire using Cronbach's alpha.

Table 2

Cronbach's Alpha Scores for the Clusters

Construct	Cronbach's Alpha
Job Satisfaction: Achievement	.684
Job Satisfaction: Recognition	.537
Job Satisfaction: Nature of the Work	.76
Job Satisfaction: Autonomy	.706
Job Satisfaction: Advancement	.
Job Dissatisfaction: Administration	.855
Job Dissatisfaction: Policy	.549
Job Dissatisfaction: Relationship with Supervisors	.626
Job Dissatisfaction: Compensation	.792
Job Dissatisfaction: Interpersonal Relationship	.74
Burnout	.906
Average	.7155

Based on the analysis of the reliability of the test instrument using Cronbach's alpha, the overall reliability of the survey questionnaire was .536 . The average Cronbach's alpha of .715 is above the level of .70, which is generally considered suitable for instruments used for research investigating social issues such as job satisfaction and burnout. The findings of the analysis indicated the survey questionnaire used in the pilot test was reliable.

Analysis of the Data

The data reduction plan for the study was based on the pre-coded nature of the survey questionnaire, which established pre-defined data categories. In addition, the data reduction plan called for the elimination of any questionnaires that were illegible, incomplete, or had multiple responses to the same question. The data reduction plan also

called for the identification of data groupings based on the use of cross-training or traditional functional training in the department. Because of the large number of questions in the survey questionnaire, the data were aggregated according to the major constructs assessed by the questions and presented in Table 1. A composite score was developed for each construct. The data were analyzed using SPSS 16.0.

The data produced by the survey questionnaire was used to develop descriptive statistics that show the mean, median, mode, which provided an indication of central tendency and, standard deviations, kurtosis and skew, which provided an indication of the dispersion and shape of the distributions. The descriptive statistics were also used to show the influence of demographic variables on the data. ANOVA was used to test the existence of a statistically significant difference between the means of the cross-trained group of emergency service personnel and the means of the traditionally trained group of emergency service personnel for the dependent variables of job satisfaction and burnout assessed by the survey questionnaire. In addition, ANOVA was used to determine if the demographic variables have an influence on the findings of the differences between cross-trained and traditionally trained emergency service personnel. The criterion for the rejection of the hypotheses and the acceptance of the alternative hypotheses is variance in the means at an alpha level of $p < .05$. Multiple regression analysis was also used to test the existence of a relationship between the aggregate scores for each cluster and the demographic variables.

Limitations of the Methodology

A limitation of the methodology was the threat to internal validity from the possibility of confounding variables not accounted for in the research design. If

intervening to create the appearance the independent variable of cross-training is correlated with, the correlation may be deceptive, if possible confounding are not controlled (Gliner & Morgan, 2000). The threat to internal validity was relatively high because many variables can influence job satisfaction and burnout among emergency service personnel other than cross-training. Selection bias was also a significant threat to internal validity in study. Purposeful selection was used to identify the emergency services departments with the possibility the sample was not representative of the entire population of emergency service personnel. The willingness of the administrators of the emergency service departments to participate in the study controlled access to the data from the police, fire and EMS personnel employed by the department. Because of the data collection design, an emergency services department could have been excluded from the study based on a confounding variable not controlled for in the study. The inclusion of a public safety department and the personnel in the department was determined solely by the decision of the administrators of the department. The strategy used in the study to reduce the threats to internal validity was to define inclusion and exclusion criteria for emergency services departments and respondents in the departments who provided data. . Because the study used a cross-sectional research design with the data collected at a single time, history, maturation and repeated testing bias were not threats to the internal validity of the findings.

Summary of the Methodology

The purpose of this quantitative, correlational study was to statistically compare burnout and job satisfaction among public safety employees in PSDs with cross-training in police, fire fighting and EMS duties with public safety employees trained only in their

functional task specialty. The sample population consisted of active duty police, fire and EMS personnel in three states. The inclusion criteria for the study population were full-time employment in a public safety organization for more than one year. A survey questionnaire developed for the study was used to collect data, with a pilot test establishing the reliability and validity of the instrument. The sampling procedure initially obtained permission from the department administrators to conduct the survey followed by dissemination of the survey questionnaire by mail to emergency services personnel in the department. The data obtained from the survey questionnaire were used to develop descriptive statistics and to test the hypotheses with ANOVA and ordinary least squares multiple regression

CHAPTER 4: RESULTS

Introduction

This chapter presents the findings from the dissemination of the survey questionnaire to the study population. The data were analyzed using descriptive and inferential statistics to assess the influence of cross-training on job satisfaction and burnout among public safety personnel. The descriptive statistics present the mean, median, and mode, which show the central tendency of the data, and the standard deviation, skewness and kurtosis to show the variation in the data. Because job satisfaction is influenced by both motivators and hygiene factors in the two-factor theory of job satisfaction, the analysis separated job satisfaction into achievement, recognition, nature of the work, autonomy, administration, policy, relationship with supervisors, compensation, interpersonal relationships and the dependent variable burnout. Burnout was a separate dependent variable measured by items in the survey questionnaire. This chapter also presents the ANOVA analysis of the differences between burnout and job satisfaction between the group of respondents with cross training and the group of respondents trained only in their functional police, fire or EMS functions. For dependent variables with a statistically significant difference between the two groups, the means of the groups are examined separately to assess whether the mean differences are substantively important provide an indication of the nature of the difference. The chapter is organized in sections consisting of participants, results and summary and discussion of the findings with subsections included when needed.

Participants

The dissemination of the survey questionnaire used in the study produced 210 usable responses from the study population. Among the respondents, 52 or 24.7 had received cross-training, while 158 or 75.2% were from traditional emergency service departments providing training to personnel only in their functional specialties. The smaller number of cross-trained respondents compared to the traditionally trained respondents was an anticipated finding because cross-training is used in fewer public safety organizations. As Table 3 shows the largest group of respondents was employed by a traditional police department, which accounted for 43.3% of the respondents. This finding was also anticipated because police are the largest group of public safety employees. In addition, 84.3% of the respondents were male and 93.3% of the respondents where white. The smaller percentage of women and individuals from racial or ethnic groups other than white reduced reliability of findings related to gender or race. The educational background of the respondents was varied, although 47.1% reported a bachelor's degree as the highest level of educational achievement. Most of the respondents had at least some college education (75%). The majority of the respondents were employed by emergency services departments in municipalities with a population of 25,000 or less. The average age of the respondents was 33.7 years and the average number of years the respondents were employed in the profession was 9.95 years. Because the age and experience data provided by the respondents were extremely varied, the analysis based on these two demographic variables used age and experience groupings. Table 3 presents the characteristics of the sample population.

Table 3

Characteristics of the Sample Population

	Number	Percentage
Type of Organization		
Police	91	43.3%
Fire	45	22.4%
EMS	20	9.5%
Public Service Organization (PSO)	52	24.8%
Gender		
Male	177	84.3%
Female	33	15.7%
Race		
White	196	93.3%
African American	6	2.9%
Hispanic	4	1.9%
Other	4	1.9%
Education		
GED	1	.5%
High School	51	24.3%
Associates Degree	45	21.4%
Bachelor's Degree	99	47.1%
Master's Degree	14	6.7%
Size of Municipality		
5000 to 25,000	125	59.5%
25,001 to 50,000	36	17.1%
50,001 to 75,000	49	23.3%
Marital Status		
Married	137	65.2%
Single	49	23.3%
Divorced	23	10.9%

The response rate from public safety personnel following the dissemination of the survey questionnaire was 48.1%, with slightly more than half of the eligible participants declining to respond to the survey. The response rate, however, applies only to the

respondents from emergency services departments agreeing to allow employees to participate in the study with a confounding variable potentially being the decision of the department to conduct the study.

Administrators or their representatives of the eight agencies participating in the survey were contacted regarding training that could have affected the results of this study. All agencies provide psychological services to personnel involved in traumatic incidents. These services are available to the personnel anytime they are requested. Police officers and PSOs mandated to attend psychological sessions after a shooting incident. All agencies reported some type of stress training, either in-house or contracted. One traditional police agency had an in-house training program that included a four hour block of instruction targeting mental fitness and stress.

A request was made to the International Association of Chiefs of Police and the International Association of Fire Fighters for information regarding stress and stress related training provided to their members and I have not received a response at this time.

Results

Central Tendency and Dispersion of the Data

The second section of the survey questionnaire obtained data about the perceptions of the respondents of job satisfaction and burnout using a seven-point Likert scale. Although the Likert scales are generally used as summated scale, descriptive statistics of the data are often prepared to identify the central tendency of the data and any unusual variation in the data distribution (Clason & Dormody, 1994). The central tendency of the aggregate data is identified by the mean, median, and mode, while the dispersion of the data is identified by standard deviation, skewness and kurtosis. A mean

score above 4.00 indicates the respondents, on average, generally agreed with the statements contained in the survey questionnaire while a mean score below 4.00 indicates the respondents, on average, generally disagreed with the statements. The dispersion data is an indication of the variance in the responses.

Because of the large number of questions in section two of the survey questionnaire, the data from the 60 questions is presented in groups according to the variable clusters in the instruments shown in Table 1. The first four groups of questions are related to the motivator factors of achievement, recognition, nature of the work and autonomy. The next five groups of questions are related to the hygiene factors of administration, policy, relationships with supervisors, compensation and interpersonal relationships with coworkers. The last group of questions is related to burnout. Appendix B shows the data relating to central tendency and dispersion for all respondents with the data aggregated by variable groups. In other words, each of the dimensions of job satisfaction and burnout were measured by computing summed scores for the items in each subscale.

The groups of questions related to the motivators associated with job satisfaction are achievement, recognition, nature of the work, and autonomy. These questions establish the perception of the respondents toward factors that can increase job satisfaction. The responses to these questions by all the respondents establishes the aggregate perception of motivators for the group of all emergency service personnel, which can be compared with the perceptions of emergency service personnel receiving cross-training and the personnel from traditional departments.

The responses to the questions in the first group of achievement variables had means trending towards strong agreement with the statements about the perceived importance of the work the respondents perform and their sense of achievement (see Appendix B). A sense of achievement is a motivational factor theoretically improving job satisfaction. The responses for all questions were also skewed to the higher end of the scale, with the kurtosis indicating a relatively sharp drop in the data as it approaches the mid range. The means for this group of questions were also the highest in the survey, ranging between 5.42 and 6.28, which suggests a very strong level of agreement with the statements about achievement. The findings indicate the respondents as a whole have a high sense of achievement based on their jobs, which may be a significant source of job satisfaction for the public service personnel participating in the study

The second group of questions examined the perception of recognition by the community for the value or importance of the work performed by public service personnel (see Appendix B). Recognition is a motivational factor contributing to higher job satisfaction. In this group, question 27 was worded in such a manner that the Likert scale was reversed. In contrast, question 4 was worded in such a manner that a score above 4.00 indicated the respondents perceived the community recognized the importance of their jobs. As with the first group of achievement questions, the skewness and kurtosis indicate the data was narrowly clustered around the mean. The responses indicate the public service personnel as a whole believed the community recognized the importance of their jobs, which may contribute to higher job satisfaction.

The respondents had a greater degree of variability in their responses to the group of questions related to the nature of the work. The data provided by the respondents

generally suggests many aspects of the nature of the work are a source of frustration and do not contribute significantly to job satisfaction (see Appendix B). The respondents had a positive perception of the stability of the work environment in question 2. The responses to question 13 also indicated the public service personnel were very satisfied with the type of tasks they performed in their jobs. This question had high agreement with a mean of 5.40 and a relatively peaked clustering of data around the mean. While most respondents disagreed with the statement that their jobs did not require a large amount of skill in question 43 with a mean of 1.56. The dispersion of the responses was very wide although there was sharp kurtosis at the mean. The responses in this group of questions also indicated the public service personnel perceived administrative requirements as burdensome and a source of frustration. In question 21, the respondents indicated they were frustrated because their activities are programmed, which had a mean of 4.10, and in question 28 they agreed there was too much paperwork, which had a mean of 5.11. The analysis of this group of questions suggest the respondents perceive some factors such as the type of tasks and the stability of the work environment as contributing to job satisfaction. . The respondents, however, perceive other factors such as the administrative requirements as a negative aspect of the nature of their work, and these tasks decrease job satisfaction.

The next group of questions was related to autonomy, which is one of the factors contributing to higher job satisfaction among professionals. The responses to questions 10, 17, and 26 were near the midpoint for the scale, suggesting the respondents were neutral towards the statements (see Appendix B). The respondents did not perceive they had a large amount of independence in their decision making process, but did not believe

there was an imbalance between authority and responsibility. The respondents also did not agree with the statement in question 38, which examined whether the department asked public service personnel to perform actions against their professional judgment. This question had a mean of 2.60.The data suggest that autonomy is not a factor contributing to job satisfaction among the public service personnel participating in the study.

The final construct related to the motivational factors of job satisfaction was advancement, which contained one question. The respondents had strong agreement that there were not enough opportunities for advancement within their agencies, with the mean of the responses at 5.47. The median and mode were also at the extreme high end of the scale at 6 and 7 respectively (see Appendix B). The findings suggest that opportunities for advancement may not be a strong motivator for the respondents because of limited availability of opportunities in their public safety organizations.

The groups of questions related to the hygiene factors of job satisfaction were related to administration practices, policy, relationships with supervisors, compensation, and interpersonal relationships with coworkers. The hygiene factors are presumed to detract from job satisfaction when the employee does not perceive the factor to be adequate. As with the questions related to motivators, the aggregate data from all the respondents provides data for all public services personnel establish the perceptions of hygiene factors.

The data provided by the respondents to the questions related to administration were generally clustered around the average neutral score of 4, suggesting the respondents perceived the items as adequate (see Appendix B). The respondents were

neutral towards the perception of a gap between administration and line personnel and the understanding of administration of the problems faced by line personnel. They also had neutral perceptions of the level of administrative interference in the performance of duties and the level of respect administration displayed towards the skill and knowledge of the line staff. The respondents departed from the pattern of neutrality in question 25 with a mean of 2.98, which indicates the respondents disagreed with the proposition that administration consults with line staff for daily problems and procedures. The dispersion of the responses was normal on both sides of the mean for this question. The findings suggest the administrative factors are generally perceived as adequate, but the autocratic leadership approach perceived by the respondents in their public service departments could be a source of job dissatisfaction.

The next group of questions pertained to the hygiene factor of job satisfaction involved perceptions of the policy of the organization. The data provided by the respondents generally indicate they believe they have little role in the development of policy in their public safety organizations (see Appendix B). The respondents do not believe they have sufficient input in the policy formation process or have an opportunity to inform administration of their policy perspectives. The means for these questions ranged from 2.86 to 3.18 indicating the respondents disagreed with the statements, which were related to their perceptions of the amount of influence they had on the policy formation process of their organizations. The skewness and kurtosis for these questions shows a normal distribution around the mean. These findings are consistent with the perception that organizations adopt an autocratic leadership approach and can be a source of job dissatisfaction for the public safety personnel responding to the survey.

The next group of questions related to the hygiene factor of relationships with supervisors. The data provided by the respondents showed mixed perceptions of their relationships (see Appendix B). In question 11, the respondents agreed there was a lot of teamwork between line personnel and supervisors. In question 29, the respondents also slightly agreed there was cooperation between supervisors and line personnel with a mean of 4.67. In question 30, however, the respondents indicated they believed they were supervised more closely than necessary. There was only slight agreement with the statement that supervisors make all the decisions during a shift. For the four questions in the group, the dispersion was relatively normal around the mean. The data suggested that the teamwork aspects of supervision may contribute to higher job satisfaction among the respondents, but the close supervision may reduce job satisfaction.

The compensation questions were related to the perceptions of the respondents about the adequacy of the pay and benefits they received as public safety employees. Compensation is a hygiene factor capable of reducing job satisfaction if employees perceive the compensation as inadequate. The analysis of the data provided by the respondents in this group produced contradictory findings (see Appendix B). Questions 1 and 9 of the survey questionnaire asked the respondents about their perceptions of the adequacy and reasonableness of their pay. The respondents slightly disagreed that their pay was sufficient for what they were expected to do with means of 4.11 (Question 1) and 3.73 (Question 9) for these two questions respectively. The respondents also slightly disagreed their pay was fair when compared to other departments in question 20. Although the means for questions 1, 9, and 20 suggest the respondents perceived their compensation as barely adequate, the responses to questions 12, 31, and 44 indicate they

perceived compensation as inadequate. The respondents strongly agreed with the statement in question 12 that the rate of increase in pay is not sufficient and the statement in question 44 that upgrading pay schedules for personnel is needed in the department. These findings may indicate the respondents were satisfied with pay at the current time but were concerned the pay would not be adequate in the future. The respondents also strongly agreed with the statement in question 31 that they have the impression other line personnel in their agency are dissatisfied with pay, which had a mean of 4.71. This finding suggests the respondents may have been marginally satisfied with their own compensation at the current time, but presumed others were not satisfied. For all questions in this group, the distribution of the data around the mean was normal. The conflicting findings indicate the respondents may be somewhat ambivalent about their compensation. They perceived their current compensation as barely adequate. At the same time, they were concerned that their compensation would not be adequate in the future, which could result in lower job satisfaction.

The final group of questions investigating the hygiene factors related to job satisfaction among public safety personnel consisted of the interpersonal relationship questions. The data generally indicated the respondents had very good relationships with their coworkers (see Appendix B). For questions 5, 14, and 36, a low mean was an indicator of good relationships with coworkers. These three questions had means of 2.80, 2.48, and 2.88 respectively, with moderate disagreement for each question. The skewness and kurtosis for questions question 14 indicated a peaked dispersion around the mean. This question was related to the perception of the respondents of the friendliness of the coworkers on the same shift. Questions 15 and 33 were worded so that agreement with

the statement indicated the respondents perceived good relationships with coworkers. These two questions had means of 4.27 and 4.50 respectively. The findings indicate the respondents perceived they had fairly good relationships with coworkers, with these relationships not likely to reduce job satisfaction.

The survey questionnaire measured factors related to burnout with questions 45 to 60. These questions were worded so that a high score was an indicator of a symptom of burnout while a low score indicated an absence of a symptom of burnout. The analysis of the data generally showed the respondents had strong disagreement with the statements suggesting they had a symptom of burnout. The means for the responses to questions 45 through 59 ranged from 1.70 to 3.31, but the skewness and kurtosis for some questions indicated a relatively normal distribution with some respondents indicating a higher level of agreement with the statements (see Appendix B). The least disagreement with a mean of 3.31 was with question 48, which asked the respondents to rate their agreement with the statement: I feel tired even though I've gotten plenty of sleep. The most disagreement with a mean of 1.70 was with question 58 which asked the respondents to rate their agreement with the statement: I avoid the scene of traumatic incidents. These findings suggest the respondents were not suffering from the symptoms of burnout. Question 60 asked the respondents if they believed others received preferential treatment. The data for this question had a mean of 4.33 indicating the respondents slightly agreed with the statement. This question, however, had the largest standard deviation among the survey question responses, suggesting a very wide dispersion of the responses. The data produced by this question may be anomalous because of the wording, which may have led the respondents to have several different interpretations to the question. Although the

data for most questions in the burnout section of the survey questionnaire is tightly clustered in the strongly disagree range of the scale, the dispersion indicates that there are some respondents reporting symptoms of burnout.

The respondents generally had strong disagreement with the statements related to burnout symptoms, with the data for the 15 questions related to burnout clustered around the extreme lower values in the scale between two and three. The consistent clustering at the low end of the scale suggests the respondents may have been reluctant to disclose actual symptoms or feelings associated with burnout. Nonetheless, there was sufficient variation in the responses in the responses to support further analysis by ANOVA.

ANOVA Analysis

To test the hypotheses of the study, ANOVA was conducted on the data obtained from the respondents using the survey questionnaire. The groups for the ANOVA analysis were the respondents reporting they had received cross-training and the respondents reporting they had not received cross-training. The first section of the survey questionnaire was designed to allow the coding process to segregate the respondents who had received cross training from the respondents who had not received cross training to support a comparison between the two groups. The data were analyzed to determine the differences between the two groups in their perceptions of burnout, the factors relating to job satisfaction, and the influence of demographic variables on perceptions. In addition, the means of the respondents receiving cross training were compared to the means of the respondents not receiving cross-training for items in the survey questionnaire in which there was a statistically significant difference between the groups. A comparison of the means was used to identify the effect of cross-training on the responses to the statements

in the survey questionnaire. The value of the means between the two groups provided an indication of the nature the difference between the public safety personnel receiving cross-training and the public safety personnel not receiving cross-training.

The first hypothesis of the study was H1: Cross-trained PSO line personnel in public safety departments experience less stress and burnout than do line police, fire, and EMS line personnel in public safety departments using traditional single function training. The hypothesis was intended to examine whether cross-training has an effect on the perception among the respondents of burnout symptoms. The findings indicated the existence of a statistically significant difference between perception of burnout among the public safety personnel that had received cross training and the public safety personnel that had not received cross training on 13 of the 16 questions assessed in this section using a one-tailed significance level .05. Table 4 shows the findings of the ANOVA analysis for the survey questions related to burnout. It is important to note that I am using statistical significance even though I do not have a probability sample.

Table 4

ANOVA Results for Burnout

Question	F statistic	Significance
45. Considering outside employment	12.767	.000
46. Trouble relaxing	16.668	.000
47. Family life not impacted	1.883	.171
48. Tired	4.878	.028
49. Dissatisfied with work	6.315	.013
50. Feel sad	8.221	.005
51. Irritable	13.190	.000
52. Avoid people at work	7.486	.007
53. Trouble sleeping	5.819	.017
54. Don’t like going to work	7.062	.008
55. Nothing to look forward to at work	8.508	.004

56. Work seems pointless	9.580	.002
57. Nightmares	16.876	.000
58. Avoid scene of traumatic incidents	2.200	.139
59. Memory and concentration deteriorating	.105	.746
60. Others receive preferential treatment	26.573	.000

The finding of a statistically significant difference between traditionally trained public safety personnel and cross-trained public safety personnel suggest that cross training may have an effect on some of the perceptions or symptoms related to burnout. The findings provide support of accepting the hypothesis by indicating cross-training has an effect on the perceptions of the respondents about some of the factors associated with burnout. Although a statistically significant difference did not exist for all the questions related to burnout, a statistically significant difference existed in 13 of the 16 items related to burnout. The findings, however, also suggest that cross training may not influence some factors commonly associated with burnout such as family life, avoidance of traumatic incidents, or deterioration in concentration. The absence of a statistically significant difference between the groups for all the factors assessed in the burnout section of the survey questionnaire may be because of confounding variables not accounted for in the research design.

The ANOVA analysis identified only the existence of a difference between the two groups and not the direction of the differences. To identify the specific differences between the traditionally trained group and the cross-trained group of public safety personnel, the means of both groups were compared for the items with a statistically significant difference between the groups as determined by the ANOVA analysis. The means of each group provides an indication of whether the cross-training produces a

beneficial effect by reducing the experience of the symptoms of burnout among public safety personnel. Table 5 contains the means for the group of respondents from public safety departments without cross training and the group of respondents from cross-trained public safety departments for the questions related to burnout with statistically significant differences between the groups.

Table 5

Means of Respondents without Cross-Training and Respondents with Cross-Training for Burnout

Question	No Cross-Training	Cross-Trained
45. Considering outside employment	2.43	1.70
46. Trouble relaxing	3.21	2.21
47. Relaxing	3.21.	2.58
48. Tired	3.50	2.87
49. Dissatisfied	2.31	1.90
50. Feel sad	2.21	1.64
51. Irritable	2.48	1.89
52. Avoidance	2.36	1.90
53. Trouble sleeping	2.93	2.11
54. Don't like going to work	2.19	1.69
55. Nothing to look forward to at work	2.32	1.75
56. Work seems pointless	2.02	1.52
57. Nightmares	3.04	1.95
58. Traumatic	1.78	1.50
60. Others receive preferential treatment	4.87	3.09

The differences in the means in the two groups as shown in Table 5 suggest the respondents in the cross-trained group of public safety personnel are less likely to report the symptoms associated with burnout than the public safety personnel from traditional departments that have been trained only in their specific public safety specialty. In fact, the mean differences ranged from 1.5o to 4.87, which is representative of a fairly

substantial difference on a 7 point scale. With regard to specific items the cross-trained respondents reported greater disagreement with the possibility of employment outside the public safety field and having trouble relaxing than the traditionally trained respondents. The cross-trained respondents also reported greater disagreement with the statements about feelings of sadness and feelings of irritability than the traditionally trained respondents. The respondents receiving cross-training also reported greater disagreement with the statements suggesting they did not like going to work, had nothing to look forward to at work, and the work seemed pointless than the traditionally trained respondents The second largest difference between the means of the two groups was in the level of disagreement with the statement about nightmares. The cross-trained respondents very moderately disagreed with the statement suggesting they had nightmares while the traditionally trained respondents slightly disagreed with the statements. The largest difference between the means of the cross-trained respondents and the traditionally trained respondents was in the perception that others received preferential treatment. On average respondents from the traditionally trained group slightly agreed with the statement while the respondents from the cross-trained group slightly disagreed with the statements.

The findings from the analysis of the data provided by the respondents indicate that, at a bi-level, cross-training has a positive effect for reducing burnout symptoms among public safety personnel. A statistically significant difference existed between the public safety personnel trained only in their functional specialties and the cross-trained public safety personnel on 75% of the burnout items. Although both groups reported relatively low prevalence of the symptoms of burnout, the group trained solely in their

functional specialties had a higher level of agreement with the statements suggesting they suffered from the symptoms.

The second hypothesis of the study, public safety personnel who are trained in a variety of function will experience more job satisfaction than those personnel traditionally trained. ANOVA was used to test the hypothesis by determining if statistically significant differences existed between the group of respondents from traditionally segregated departments that have not been cross-trained and the group of respondents receiving cross-training in a PSD. The procedure for analyzing the data to test the hypothesis was based on analyzing each item in each variable cluster related to the specific components of job satisfaction as shown in Table 6. The findings from the ANOVA analysis for each cluster of variables are presented separately. In addition, the means from the group of respondents receiving cross-training and the group of respondents not receiving cross-training compared for the questions that had a statistically significant difference between the groups. The comparison of the means provided an indication of the type of effect of cross-training on the perception of the respondents.

The initial set of clustered questions from the survey analyzed with the ANOVA procedure was related to the motivational factors in the two-factor theory of job satisfaction. These five groups consisted of clusters related to perceptions of ability to achieve, recognition for performance, nature of the work, and the degree of autonomy, and advancement opportunities. This portion of the analysis was intended to determine if cross-training had an effect on the perceptions of motivators among public safety personnel.

The first group of questions pertained to the achievement variables, which consisted of three questions related to the sense of achievement of the respondents in their role as public safety personnel. The findings showed a statistically significant difference between the two groups for question 21, which asked if the respondents were proud to tell others about their work, and for question 23, which asked if the respondents would enter the profession if they could make the choice over again. There was no statistically significant difference between the two groups for question 6, which asked the respondents if they had doubts about the importance of their work. The findings provide mixed support for rejecting the second hypothesis in its null form. Table 6 contains the results of the ANOVA analysis for the achievement motivators related to job satisfaction.

Table 6

ANOVA Results for Achievement Variables

Question	F Statistic	Significance
6. Importance of work	1.505	.221
21. Proud to talk about job	4.817	.029
23. Would reenter profession	10.425	.001

Table 7 contains the comparison between the means of the two questions for which a statistically significant difference existed between the two groups. It shows the public safety personnel with cross-training had greater agreement with the statements than the personnel receiving cross training. This was an expected finding because it suggests that cross-training increases the sense of achievement of public safety personnel. Personnel receiving cross training felt more proud to talk to people about their job and were more likely to enter the profession if the decision could be made over again than the

personnel without cross training. Therefore, the research hypothesis that cross-trained personnel would report greater perceptions of achievement was supported. These results may be from cross-trained possibly having a greater sense of professionalism or spirit de corp.

Table 7

Means of Respondents without Cross-Training and Respondents with Cross-Training for Achievement

Question	No Cross-Training	Cross-Trained
4. Community appreciation	5.91	6.17
21. Proud to talk about job	5.66	6.13
23. Would reenter profession	5.42	6.28

The second variable cluster related to the motivators associated with job satisfaction included the questions on the survey questionnaire examining perceptions of community recognition. The findings from the ANOVA analysis for this cluster were mixed. AS shown in Table 8, no statistically significant difference was found between the respondents receiving cross-training and those not receiving cross-training in their perception of community appreciation for the importance of the job. The difference between the two findings suggests that both groups believe the profession is important in society at large, but there were differences between the groups in the perception of the importance the local community places on the profession. The findings provide mixed support for accepting the second hypothesis. Table 8 presents the ANOVA for the recognition variables

Table 8

ANOVA Results for Recognition

Question	F Statistic	Significance
4. Community appreciates importance	3.924	.049
27. Recognized as important	7.456	.007

The mean for question 27 of the group of respondents from traditional public safety organizations without cross training was 2.67 while the mean for the group of respondents receiving cross-training was 2.14. The question was worded in a manner so that disagreement with the statement indicated the respondents perceived the community recognized the importance of public safety professions. The mean of the group receiving cross training was lower than the mean of the traditionally trained group, which indicates the cross training has a positive effect on the perception of respondents about the recognition of the importance of their jobs.

The third variable cluster related job satisfaction was the nature of the work. The survey questionnaire obtained data on ten items associated with the respondents' perceptions of the nature of the work. The findings of the ANOVA analysis for this cluster were mixed. Table 9 presents the ANOVAs for the nature of the work variables related to job satisfaction.

Table 9

ANOVA Results for Nature of the Work

Question	F Statistic	Significance
2. Stable work environment	3.964	.048
3. Control over scheduling	17.401	.000

13. Satisfied with type of activities	5.821	.017
18. Insignificance of job	3.823	.052
19. Activities are programmed	2.739	.099
28. Too much paperwork	.202	.653
32. More time needed	.740	.391
37. Sufficient time for duties	5.938	.016
41. Deliver better service	5.066	.025
43. Noskill	1.115	.292

The ANOVAs showed statistically significant difference between the public safety personnel receiving cross training and the personnel not receiving cross training existed for seven of the ten variables. The items for which there was a statistically significant difference were: a) perception of stability in work assignments; and b) perception of sufficient time to perform duties. The analysis also showed that cross-training does not affect the perception of public safety personnel about excessive paperwork, repetitive job activities, need for specific skills to perform job-related tasks or job insignificance. The findings provide partial support for accepting the hypothesis because of the differences between the means of the group of respondents receiving cross-training and the group of respondents traditionally trained in only their functional specialties.

Some questions in table 10 were recoded because of the manner in which they originally worded. Q.2, stable work environment; Q.3, control over scheduling; and Q.13, Satisfied with activities were recoded for the purpose of this study. Therefore, a lower means is more positive. As revealed in Table 10, analysis of the means from the two groups of respondents suggests the cross-training has a positive effect on the perceptions of public safety personnel of the nature of the work. The group of respondents receiving cross training had lower means for the perception of a stable work environment and

control over work schedules. The group receiving cross training was also more satisfied with the types of activities associated with their jobs. The cross-trained group also had higher agreement with the statement that they had sufficient time to perform their duties and lower agreement with the statement that they could deliver better service if they had more time than the traditionally trained group of public safety personnel. The group receiving cross-training, however, were slightly more frustrated because of the perception their activities were programmed than the traditionally trained group. This finding was unanticipated because it varies from the general perceptions about the nature of the work. The finding may be because of the expanded scope of duties for cross-trained public safety personnel, which requires closer supervision and control to coordinate work-related activities. The findings generally suggest that cross-training results in some increase in job satisfaction based on the factors related to the nature of the work among public safety personnel. Table 10 presents the means for both groups for the nature of the work questions in the survey with statistically significant differences in the means.

Table 10

Means of Respondents without Cross-Training and Respondents with Cross-Training for Nature of the Work

Question	No Cross-Training	Cross-Trained
2. Stable work environment	3.79	3.25
3. Control over scheduling	5.29	4.23
13. Satisfied with activities	2.71	2.25
18. Insignificance	5.93	6.34
19. Activities are programmed	4.00	4.40
28. Too much paperwork	2.91	2.78
32. Moretime needed	4.21	4.46
37. Sufficient time for duties	3.70	5.46
41. Better service	4.43	3.80

43. No skill	1.60	1.42

The next variable cluster included the autonomy factors related to the motivators of job satisfaction. The survey questionnaire obtained data on four variables related to autonomy. The ANOVA found a statistically significant difference between the cross-trained group and the group receiving only traditional training for all the four questions related to autonomy. Table 11contains the results of the analysis.

Table 11

ANOVA Results for the Autonomy

Question	F Statistic	Significance
10. Too much responsibility/insufficient authority	13.336	.000
17. Independence permitted	14.876	.000
26. Freedom in my work	18.419	.000
38. Unprofessional behavior expected	10.078	.002

As shown in Table 12, comparison of the means of the data related to the motivator of autonomy indicated the group receiving cross training perceived a greater level of autonomy than the traditionally trained group. The cross-trained group of respondents was neutral toward the proposition they had too much responsibility and insufficient authority while the traditionally trained group moderately agreed with the statement. This difference of around 2 points on the 7 point scale constitutes the biggest between the two groups of all the items in the survey. The cross-trained group also perceived greater independence in decision making and freedom to make decisions than the traditionally trained group. While both groups disagreed with the statement about requests to perform tasks against professional judgment, the disagreement was

significantly greater among the cross-trained group. The analysis suggests cross-training can lead to an increase in job satisfaction by improving the perception of autonomy. Table 12 contains the means for the cross-trained and traditional trained groups of respondents for the questions related to autonomy.

Table 12

Means of Respondents without Cross-Training and Respondents with Cross-Training for Autonomy

Question	No Cross-Training	Cross-Trained
10. Too much responsibility/insufficient authority	3.98	4.88
17. Independence permitted	3.94	4.90
26. Freedom	3.72	4.76
38. Unprofessional behavior expected	5.20	6.00

The final cluster of variables related to the motivators of job satisfaction was the perception of advancement opportunities within the organization employing the public safety personnel. This variable cluster included only question 34 of the survey questionnaire. The ANOVA for this question produced an F-statistic of 14.694 with a level of significance of .000, which indicated there was a statistically significant difference between the respondents receiving cross-training and the respondents not receiving cross-training. The mean for the group receiving cross training was 4.88 while the mean for the group not receiving cross-training was 5.73. While both groups agreed there were insufficient opportunities for advancement with the organization, the group without cross-training had stronger agreement. The findings suggest that cross-training

improves the perception among public safety personnel of the opportunities for advancement within the organization.

The next set of questions analyzed to test the second hypothesis of the study was related to the hygiene factors of job satisfaction. The five clusters of variables related to the hygiene factors were administration, policy, relationships with supervisors, compensation, and interpersonal relationships. The data were analyzed using ANOVA to assess whether statistically significant difference existed between the group receiving cross-training and the group without cross-training. For questions with a statistically significant difference, means of the two groups were examined to assess the nature of the difference in the responses.

Six items pertained to administration hygiene factors obtained data from six questions. The ANOVA analysis indicated there was a statistically significant difference between the group of public safety personnel receiving cross training and the traditionally trained personnel for all of the six questions related to the administration hygiene factors. The findings suggest cross-training has some influence on the hygiene factors related to administration. Table 13presents the findings of the ANOVAs for the administration factors.

Table 13

ANOVA Results for the Administration

Question	F Statistic	Significance
7. Gap between administration and tasks	15.830	.000
22. Administration appreciates	17.283	.000
25. Administration consults	17.694	.000
39. Administration decisions interfere with duties	11.074	.001

40. Wish administration shows respect	20.308	.000
42. Administration looks down on Personnel	25.491	.000

As shown in Table 14, analysis of the means of the two groups for the questions related to administration indicates the respondents with cross-training had a greater perception of the adequacy of the practices of administration than the respondents who had perceived cross-training. The cross-trained personnel perceived greater administration support for all questions, with closer alignment between the requirements of administration and the activities of the respondents. The cross-trained respondents did not agree as strongly with the statements examining a perceived gap between administration and the tasks performed by personnel, the interference of administration with duties when compared to the respondents receiving traditional training. The cross-trained respondents also perceived administration consulting with staff and having a greater understanding of line personnel than traditionally trained personnel Table 14 contains the comparison of the means for the two groups for the questions related to administration. The mean differences range from .95 to 1.29, with most being greater than 1 point. The differences suggest a real and moderate impact of cross-training on perception of administration.

Table 14

Means of Respondents without Cross-Training and Respondents with Cross-Training for Administration

Question	No Cross-Training	Cross-Trained
7. Gap between administration and tasks	3.67	4.67
22. Administration understands	3.60	4.55

25. Administration consults	2.73	3.75
39. Administration decisions interfere with duties	4.06	3.19
40. Wish administration shows respect	4.66	3.54
42. Administration looks down on Personnel	4.06	2.77

The next set of three items pertained to the hygiene factors regarding the perceptions of the respondents toward specific policies adopted by the public safety organizations. The perception among the respondents that the policies did not adequately meet their needs as employees could produce lower job satisfaction. The ANOVA analysis of the three questions related to police indicated there was a statistically significant difference between the two groups for tall three questions. Table 15 contains the results of the ANOVA for these questions.

Table 15

ANOVA Results for the Policy

Question	F Statistic	Significance
8. Sufficient input into policies	25.400	.000
16. Opportunity to participate in decision making process	23.178	.000
24. Sufficient voice in planning	20.892	.000

As Table 16 shows, public safety personnel not receiving cross-training had greater disagreement with policy items than the group receiving cross training. While both groups did not believe the employing organizations accorded them a sufficient role in the development of policy, the group receiving cross-training was closer to a neutral position on the three questions. The findings suggest that cross-training may be related to a perception of a greater role in the policy formation process among public safety

personnel. Table 16 contains the comparison of the means of the two groups of respondents.

Table 16

Means of Respondents without Cross-Training and Respondents with Cross-Training for Policy

Question	No Cross-Training	Cross-Trained
8. Sufficient input into policies	2.85	4.17
16. Opportunity to participate in decision making process	2.69	3.76
24. Sufficient voice in planning	2.60	3.63

The next cluster of items focused on the perceptions of the respondents of their relationships with supervisors. There was a statistically significant difference between the groups for three of the four questions related to relationships with supervisors. The analysis showed a statistically difference between the groups for question 29, which asked for the perception of the cooperation between supervisors and line personnel, and question 35, which examined the perception of the respondents about whether supervisors made most of the decisions during a work shift. Both groups disagreed with the proposition, indicating that they did not perceive supervisors exerting excessive control over activities. The findings suggest cross-training has a mixed effect on the relationship with supervisors, leading to some improvement in the relationship. Table 17 contains the findings from the ANOVA for the questions examining relationship with supervisors.

Table 17

ANOVA Results for the Relationship with Supervisors

Question	F Statistic	Significance
11. Teamwork with supervisors	6.062	.015
29. Supervisors cooperate with line staff	4.748	.030
30. Supervised more closely than necessary	10.333	.002
35. Supervisors make all decisions	8.084	.005

As indicated in Table 18, examination of the means of the two questions with statistically significant differences reveals cross-trained group had a higher agreement that supervisors cooperated with line personnel than the traditionally trained group. The mean traditionally trained group was close to the neutral median point for the scale used in the questionnaire, while the mean for the cross-trained group showed modest agreement with the statement. The cross-trained group disagreed with the proposition that they were supervised more closely than necessary while there was slight agreement with the statement among the traditionally trained group. Table 18 shows the means for the two groups. Q.30 was reversed coded because of the manner in which the question was worded cross-trained had more disagreement with this question than non cross-trained.

Table 18

Means of Respondents without Cross-Training and Respondents with Cross-Training for Relationship With Supervisors

Question	No Cross-Training	Cross-Trained
11. Teamwork with supervisors	4.38	4.92
29. Supervisors cooperate	4.56	5.00

30. Supervised more closely than necessary	3.83	4.65
35. Supervisors make decision	3.48	2.86

The next cluster of items pertained to the hygiene factors of compensation, with data collected from the respondents in six items in the survey questionnaire. The ANOVA showed a statistically significant difference between the groups for all six questions. Table 19 contains the results of the ANOVAs.

Table 19

ANOVA Results for Compensation

Question	F Statistic	Significance
1. Satisfied with salary	2.679	.103
9. Salary is reasonable	6.682	.010
12. Rate of salary increase not sufficient	4.371	.038
20. Fairpay	23.705	.000
31. Others are dissatisfied with pay	30.851	.000
44. Pay upgrade needed	16.157	.000

As shown in Table 20, comparison of the means showed the respondents receiving cross-training generally perceive the compensation as more adequate than the respondents not receiving cross-training. The mean differences range from .5 to 1.6. The cross-trained public safety personnel were more satisfied with compensation and had higher agreement with the proposition that their salary was reasonable. The respondents not receiving cross-training strongly agreed the rate of salary increase was not reasonable, while the cross-trained respondents only slightly agreed the rate of salary increase was not sufficient. The cross-trained personnel also had lower agreement with the proposition they perceive others are dissatisfied with pay and the statement they

perceive the pay schedule required upgrading. The cross-trained personnel, however, had lower agreement with the statement that personnel in their organization were being paid fairly when compared to other agencies. Table 20 contains the comparison of the means related to compensation for the two groups. Questions 12, 20, and 31 were recoded because of the manner in which they were worded.

Table 20

Means of Respondents without Cross-Training and Respondents with Cross-Training for Compensation

Question	No Cross-Training	Cross-Trained
1. Satisfied with salary	5.02	4.38
9. Salary is reasonable	3.57	4.19
12. Rate of salary increase not sufficient	2.94	3.44
20. Fairpay	4.18	5.36
31. Others are dissatisfied with pay	2.95	4.31
44. Pay upgrade is needed	5.30	4.46

The last set of items related to the hygiene factors influencing job satisfaction included five questions pertaining to interpersonal relationships among the public safety personnel. The ANOVAs found statistically significant differences between the public safety personnel receiving cross-training and the traditionally trained personnel for four of the five questions. There was no difference between the groups in the perception that there is cooperation among personnel at all levels within the agency. Table 21 contains the findings from the ANOVA analysis for the interpersonal relationship cluster of questions.

Table 21

ANOVA Results for the Interpersonal Relationship

Question	F Statistic	Significance
5. Hard for new personnel to feel at home	5.797	.017
14. Line personnel are not friendly	6.971	.009
15. Opportunity to discuss problems with peers	.769	.382
33. Team work and cooperation	.295	.588
36. Rank consciousness in unit	15.595	.000

As shown in Table 22, comparison of the means for the two groups for the questions related to interpersonal relationships showed the cross-trained group had more favorable perceptions of their relationships with peers. While both groups disagreed with the statement that line personnel on the shift are not friendly, the cross-trained group had greater disagreement than the group receiving only traditional training. The cross-trained personnel also had more agreement with the statement about opportunities to discuss problems with peers and perceived less rank consciousness in their units than the personnel receiving only traditional training. Table 22 contains the means of the two groups for the questions with statistically significant differences between the groups. Questions 5 and 14 were recoded to account for the manner in which they were worded.

Table 22

Means of Respondents without Cross-Training and Respondents with Cross-Training for Interpersonal Relationship

Question	No Cross-Training	Cross-Trained
5. Hard for new person to feel at home	5.06	5.59
14. Line personnel are not friendly	5.37	5.96
15. Opportunity to discuss problems with		

peers	4.22	4.43
33. Good deal of tem work	4.41	4.75
36. Rank consciousness in unit	3.08	2.23

The analysis of the variables related to job satisfaction provides support for accepting H2. The ANOVAs found statistically significant differences between the group of respondents receiving cross-training and the group of respondents from departments not using cross-training for 34 of the 44 items examined in the survey questionnaire. The examination of the means of the two groups also indicated the cross-trained personnel generally had more positive perceptions of their employment situation and environment than the personnel not receiving cross-training.

The analysis of the data also suggested that cross training has a stronger effect on the hygiene factors related to job satisfaction than the motivator factors. The ANOVA of the hygiene factors showed a statistically significant difference for 20 of the 24 factors, with cross-training producing a positive effect on job satisfaction for 83% of the hygiene factors assessed by the survey questionnaire. The ANOVA of the motivators, however, showed a statistically significant difference for 14 of the 20 factors, with cross-training producing a positive effect on job satisfaction for 70% of the motivators assessed by the survey questionnaire.

It is important at this point to acknowledge, however, that the ANOVA results show the bivariate relationship between type of training and job satisfaction and burnout factors. Because of the subjectivity of burnout and job satisfaction, is possible that the results may be influenced by an unaccounted for variable, and would be reduced if potentially influencing variables were controlled. Therefore, multivariate analyses using multiple regression will be reported later in the chapter.

The findings from the testing of the first hypothesis indicated a reduction in burnout among public safety personnel receiving cross training while the findings from the testing of the second hypothesis indicated an increase in job satisfaction among public safety personnel receiving cross training. .

ANOVA Analysis of the Demographic Variables

Demographic variables were analyzed in this study in an attempt to determine if they may be an influencing factor in the study results. Using bivariate ANOVAs, the data from the respondents were organized by the demographic categories established in the survey questionnaire to determine if statistically significant differences existed across categories of demographic variables. The data were analyzed for the individual questions in each cluster of variables related to motivators, hygiene factors, and burnout. The presentation of the ANOVA findings will focus on the statistically significant differences between groups categorized by the demographic variables of job function, gender, years of experience, highest degree, and marital status. Race was not considered because the number of non-whites was minimal.

There were no differences based on job function or marital status. Years of experience, however, appeared to have some moderating effect on factors such as looking forward to going to work and considering employment in other areas. The effect of years of experience, however, was variable. Personnel with higher education levels were more likely to consider outside employment. Although demographic factors were linked to some differences in the symptoms of burnout reported by the respondents, the differences were not consistently found in all questions or for all demographic factors. When the findings of the ANOVA analyses were organized based on the motivator and hygiene

variable clusters, the data indicate the clusters of compensation, interpersonal relationships and nature of the work. While other demographic variables such as gender or marital status were also associated with some of the items, the statistical associations only occurred with only in a single question and did not reveal a consistent pattern. Only age was consistently associated with more than one item.

The findings indicate that the variables of public safety function, gender, experience, education, marital status and race do not influence the relationship between cross-training and burnout or job satisfaction. The findings suggest, however, that years of experience may be a demographic variable influencing the relationship between cross training and burnout and between cross-training and the factors related to job satisfaction. Years of experience, has some effect on the findings. Regression analysis was used to further examine the influencing effect of demographic variables.

Regression Analysis of the Demographic Variables

To further identify the effects of the demographic variables and to assure that the association between type of training and job satisfaction and burnout variables were not spurious, multiple regression analysis was performed on the cumulative score from each variable cluster against the demographic variables. The first step was to create composite scores (indices) of each dimension of job satisfaction and for burnout by computing mean scores of each cluster of items. Mean scores for each index are shown in Table 20, along with the mean score separately by type of training. In the regression analyses the mean cluster scores were the dependent variables and the demographic variables, such as age, years of experience and marital status, as well as and type of training were independent variables. The specific demographic variables used in the multiple regression analysis

were gender, years of experience, highest degree attained, cross training, age, marital status and race.

The findings from the analysis of the first variable cluster of achievement indicated that gender, cross-training, and years of experience had a statistically significant relationship to the respondents' perceptions of achievement. I used standardized betas to determine which variables were slightly or moderately related to perception of achievement. Cross-training was coded as 1 and traditional training was coded as 0. In substantive terms, individuals who were cross-trained had higher scores on positive perceptions of achievement, controlling for demographic variables. The explained variance for the model was .14 which indicates and the overall model provided modest explanation of the perceptions of the respondents of achievement. The findings also indicate that gender and years of experience were modest predictors of perceptions since the standardized betas for gender and years of experience were -.229 and -.255 respectively. The achievement scale is coded such that high scores are a positive attribute.

Table 23

Multiple Regression Analysis of Achievement Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.137	20.666	1.102		18.745	.000
Gender		-2.197	.625	-.229	-3.517	.001
Degree		-.283	.250	-.076	-1.333	.259
Cross-training		1.750	.550	.218	3.180	.002
Marital Status		- 854	.483	-.118	-1.768	.079
Years Experience		.-123	.032	-.255	-3.838	.000

The analysis of the data for the recognition cluster of questions from the survey questionnaire indicated a statistically significant effect from the variables of years experiecne, cross-training, and gender. The betas for these three variables, however, were also relatively low,-.142, .146, and -167 respectively, suggesting that they are only weak to moderate predictors of perceptions of cognition scale. The explained variance for the overall model was .131, suggesting that the demographic variables and the type of training account for a relatively modest percentage of the variation. Table 24 contains the results from the multiple regression analysis for the recognition cluster. Low scores are a negative attribute for this cluster.

Table 24

Multiple Regression Analysis of the Recognition Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.131	11.531	.810		14.235	.000
Gender		-1.135	.460	-167	-2.468	.014
Degree		.314	.186	-.118	1.688	.093
Cross-training		.840	.400	.146	2.100	.037
Marital Status		-.641	.358	-.124	-1.792	.075
Years Experience		-.049	.024	-.142	-2.071	.040

The multiple regression analysis for the nature of the work cluster found statistically significant associations in the model. The explained variance for the model indicates that the some demographic variables and type of training were good predictors of the perceptions of the study population toward the nature of the work. The coefficient of determination was .161, indicating sufficient association. The findings indicate that the type of training and highest degree obtained did have an influence on the perceptions of the nature of work. They had standardized betas of -.305 and .275 respectively. A high

score in this cluster is a positive attribute. Table 25 contains the results of the multiple regression analysis for nature of the work cluster of subscale.

Table 25

Multiple Regression Analysis of Nature of the Work Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.161	23.763	2.831		8.394	.000
Gender		4.160	1.632	.170	2.548	.012
Degree		2.607	.656	.275	3.976	.000
Cross-training		-6.263	1.415	-.305	-4.426	.000
Marital Status		-.563	1.811	-.031	-.449	.654
Years Experience		.146	.083	.118	1.755	.081

The next cluster of questions examined by the survey questionnaire examined the perception of the respondents about autonomy. Autonomy or the ability to make self-directed decisions is limited in fire, police, ems, and pso departments because of the defined chain of command employed in a paramilitary organization. Internal policy of the organization as well as state and federal laws place significant constraints on workplace behavior. The findings showed statistically significant associations between cross-training and years of experience variables and the respondent's perceptions of autonomy. The coefficient of determination was .221 indicating that the variables had modest effect. Cross-trained PSOS may experience more autonomy due to their ability to perform all three public safety functions, whereas, the traditional perform only a single function and have received less training. Table 26 contains the findings from the multiple regression analysis of the autonomy cluster of questions. Low score that respondent's disagreed with the questions.

Table 26

Multiple Regression Analysis of the Autonomy Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.221	20.080	1.429		14.189	.000
Gender		-.675	.817	-.053	- .826	.410
Degree		-.277	.329	-056	-.843	.400
Cross-training		3.618	.706	.336	5.125	.000
Marital Status		.151	.631	.016	.240	.811
Years Experience		-.203	.042	-.313	-4.832	.000

The advancement cluster was analyzed next, which consisted of only a single question in the survey questionnaire. The findings showed that education determined by degree, and cross training were statistically significant. The overall explained variance of .09 suggests modest prediction of perception of advancement by the variable type of training (Cross-training)Another factor of significance in this cluster was high degree obtained with a standardized beta of .305. Highest degree obtained and type of training had the greatest effect on the perception of advancement, with the highest standardized beta .34 among the variables. The negative sign in the cross-training cluster suggests that respondents who were cross-trained had more positive perceptions of advancement possibilities. Totally consolidated cross-trained public safety agencies are known to be able to operate and perform the same functions with few personnel than the traditional agencies. However, it is unknown to this study what the ratio of supervisor/managers to line personnel is. Table 27 contains the findings from the multiple regression analysis of the advancement cluster. Low scores for advancement indicate disagreement wiwth the question.

Table 27

Multiple Regression Analysis of the Advancement Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.139	3.524	502		7.018 .	.000
Gender		.512	.288	.120	1.779	.077
Degree		.503	.115	.305	4.366	.000
Cross-training		-1.024	.248	-.286	-4.122	.000
Marital Status		-.098	.222	-.030	-.436	.661
Years Experience		.013	.015	.062	.896	.371

The multiple regression analysis of the administration cluster indicated that the variable of cross-training was a modest predictor of the perceptions of administration, with an overall explained variance of .106. Cross-training was the only statistically significant predictor, net of other predictors, but had a very modest standardized beta of -.268. This may be the results of a single administration of the PSD in place of three separate administrations of the traditional agencies. High scores indicate the respondents are unhappy. Table 28 presents the data from the multiple regression analysis of the administration cluster.

Table 28

Multiple Regression Analysis of the Administration Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.106	14.199	1.662		8.541	.000
Gender		-.633	.947	-.046	-.668	.505
Degree		.710	.383	.132	1.856	.065
Cross-training		-3.106	.819	-.268	-3.793	.000
Marital Status		.102	.049	.145	2.079	.039
Years Experience		.021	.034	.044	.608	.544

The analysis of the policy cluster showed a weak relationship between the demographic variables and the respondents' perception of policy, with an explained variance of .142. The only variable to have a statistically significant unstandardized regression coefficient in the model of .360 is cross-training. This may be attributed to a simpler chain of command within the PSD when compared to the traditional single function agencies, each with their own chain of command. Also, each traditional agency has its own chain of command and may be in competition with each other for resources. High scores in this cluster indicated respondents were pleased with the policies.

Table 29

Multiple Regression Analysis of the Policy Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.142	11.579	1.128		10 .266	.000
Gender		- .826	.645	-.086	-1.281	.202
Degree		-.134	.258	-.036	-.516	.606
Cross-training		2.915	.557	.360	5.233	.000
Marital Status		.393	.498	.054	.790	.431
Years Experience		-.016	.033	.033	.480	.631

As shown in Table 30, none of the unstandardized regression coefficients was statistically significantly associated with perceptions of supervisors. The overall model only explained 1 percent of the variance in perceptions, indicating that the demographic variables were relatively weak predictors of perceptions of supervisors. The standardized regression coefficient for the type of training was moderate (.26), however, suggesting that it was weak to moderate predictor. Positive scores for this cluster indicated respondents were pleased with their relationship with supervisors. Table 30 presents the results of the multiple regression analysis for the relationships with supervisors cluster.

Table 30

Multiple Regression Analysis of the Relationship with Supervisors Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.095	19.718	1.388		14.208	.000
Gender		.449	.809	.038	.555	.580
Degree		-.517	.324	-.112	-1.595	.112
Cross-training		2.578	.691	.257	3.731	.000
Status		.087	.361	.016	.242	.809
Years Experience		-.140	.040	-.231	-3.500	.001

As shown in Table 31, only one variable was statistically a significant predictor of perceptions of compensation, type of training. The overall explained variance of .01 was quite modest, indicating that the demographic variables are weak predictors of perception of compensation. Nonetheless, type of training had a relatively high standardized beta (.26) suggesting that it accounted for much of the variation in the model. The standardized beta also suggests that cross-training may result in more positive perceptions of compensation. Cross-trained personnel were happier with their compensation. Table 31 contains the data from the multiple regression analysis of the compensation cluster.

Table 31

Multiple Regression Analysis of the Compensation Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.093	23.237	2.148		10.817	.000
Gender		-2.000	1.228	-.112	-1.628	.104
Degree		-.164	.494	-.023	-.332	.739
Cross-training		3.892	1.061	.259	3.669	.000
Marital Status		.064	.947	.004	.068	.945
Years Experience		.08	.063	.088	1.270	.205

The analysis of the interpersonal relationship cluster indicates that the demographic variables are weakly correlated with an overall explained variance of .05.the cluster, with a regression r of .106. The demographic variables achieving statistical significance were cross-training. The standardized beta of .268 indicates cross-training to have a moderate effect on interpersonal relations. Cross-training may improve interpersonal relations due to increased field support available in cross-trained PSDS. Negative scores indicate respondents are more pleased with the interpersonal relationships with their agencies. Table 32 contains the results of the multiple regression analysis of the interpersonal relationships cluster.

Table 32

Multiple Regression Analysis of Interpersonal Relationship Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.106	14.199	1.662		8.541	.000
Gender		-.633	.947	-.046	- 668	.505
Degree		.710	.383	.132	1.856	.065
Cross-training		-3.106	.819	-.268	-3.793	.000
Status		-1.081	.734	-.104	-1.474	.142
Years Experience		.102	.049	.132	1.856	.065

The multiple regression analysis of the burnout cluster indicated that cross training was the best predictor of burnout and accounted for the second greatest amount of the variance. The explained variance for the overall model was a modest .239, indicating the demographic variables and type of training were relatively weak determinants of burnout. Interestingly years experience had a relatively strong impact on burnout. Negative results in the burnout cluster indicates that cross-trained personnel experience less burnout symptoms. Table 33 contains the results of the multiple regression analysis for the burnout cluster.

Table 33

Multiple Regression Analysis of the Burnout Cluster

	R^2	Unst. Beta	Std. Error	Std. Beta	t	Sig.
Model	.239	28.843	5.116		4.660	.000
Gender		6.333	2.925	.137	2.165	.032
Degree		2.211	1.177	.123	1.879	.062
Cross-training		-11.783	2.527	-.303	-4.664	.000
Marital Status		1.228	2.257	.035	.544	.587
Years Experience		.767	.150	.327	5.101	.000

Overall the findings suggest that type of training has modest effects on several dimensions of job satisfaction. Specifically, cross-training was moderately associated with perceptions of 10 of the 11 clusters.

Other demographic variable were also predictive of various aspects of job satisfaction and burnout. Specifically, gender was a significant predictor of perceptions of achievement, administration, and burnout. These findings may be due to the perceptions among females concerning unequal treatment and opportunities for advancement. However, the statistical associates were relatively weak overall.

The findings of the multiple regression analysis also showed some statistical associations between highest earned degree, marital status, and years experience. These effects, however, were inconsistent and relatively modest.

The findings of previous researchers provide some explanation for the inconsistencies in the influence of the demographic variables on the findings. Stetz, Stetzz and Baise (2006) determined that organizational constraints can influence job satisfaction and burnout among public safety personnel. Organizational constraints in the

form of policies or procedures could interact with some demographic variables to create the appearance of a relationship between job satisfaction, burnout and the demographic variables. Policies limiting opportunities for advancement could have influenced the finding of a relationship between highest degree earned and the advancement and compensation cluster. Individuals with more advanced degrees could become more dissatisfied with compensation and advancement opportunities than individuals with less education. The research conducted by Haisch and Meyers (2004) as well as the study of Thompson, Kirk, and Brown (2005) indicated that stress is often associated with low job satisfaction and burnout. The finding of a relationship between gender and the clusters of achievement, administration, and burnout suggests that gender may be a variable that influences level of stress in the occupations I studied. Specifically women may perceive that they have unequal opportunities and may receive unequal treatment with regard to administrative policies and chances for achievement. Because gender appeared as a modest predictor of three dimensions of job satisfaction, however, further research is necessary to determine if gender is an important determinant.

Overall, the findings produced by the ANOVA and the regression of the demographic variables are inconclusive. The findings indicate that some demographic variables such as years of education, and gender may have an influence on job satisfaction and burnout among public safety personnel.

Summary and Discussion of the Findings

The data provided by the respondents showed a very low amount of reported burnout, which may have been because of the reluctance among public safety personnel to admit to symptoms of burnout. The ANOVA for the data related to burnout, however,

found statistically significant differences between the group of public safety personnel receiving cross training and the group of public safety personnel from traditional departments who had not received cross-training. In general, the cross-trained personnel reported lower levels of burnout than the traditionally trained public safety personnel. The findings suggest that the hypothesis; Police, fire, and EMS line personnel in public safety departments using cross-training experience less stress and burnout than police, fire, and EMS line personnel in public safety departments not using cross-training should be accepted.. There may be a common cause of both type of training and burnout. Alternatively, other variables may influence the relationship between type of training and burnout.

The ANOVA also found statistically significant differences between the group of cross-trained public safety personnel and the group of personnel not receiving cross training for many of the factors related to job satisfaction. For most of the variables assessed by the survey questionnaire, a statistically significant difference existed between the two groups. The analysis also showed a slightly greater rate of statistically significant associations between type of training and the hygiene variables than between type of training and the motivator variables. The data also showed that cross-training produced a more favorable perspective towards the job among public safety personnel. The findings provide support for accepting the second hypothesis: The cross-training of line personnel in public safety departments produces higher job satisfaction than police, fire and EMS line personnel in public safety departments not using cross-training. Once again, however, the results of the multiple regression indicate the effect of cross-training on job satisfaction may be influenced by other unaccounted for variables. There may be a

common cause of both type of training and job satisfaction. Or, other variables may mediate the relationship between type of training and burnout.

The data analysis examined the effect of demographic factors on burnout and job satisfaction among the respondents produced mixed results. The analysis showed that gender, years of experience, education, marital status, and type of training were modest predictors overall of burnout and the specific dimensions of job satisfaction. Table 34 contains a summary of the findings of the ANOVA analysis of the relationship between age and the individual questions and the regression models for each cluster of variables.

Table 34

Summary of the Findings

Cluster	ANOVA	Regression (R2)
Burnout	Q 45, 46, 50, 51, 53, 54 55, 56, 57, 60	.239
Achievement	Q. 21, 23	.137
Recognition	Q. 4,27	.131
Nature of the Work	Q. 2, 3, 13, 19, 41	.161
Autonomy	Q. 10, 17, 26, 38	.221
Advancement	Q. 34	.139
Administration	Q. 7, 22, 25, 39, 40, 42	.106
Policy	Q. 8, 16, 24	.142
Relationships with Supervisors	Q. 11, 30	.095
Compensation	Q. 1, 9, 12, 20, 31, 44	.093
Interpersonal Relationship	Q. 14, 15, 36	.106

CHAPTER 5: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

This quantitative, correlational study statistically compared burnout and job satisfaction among public safety employees in PSDs that have received cross-training in police, fire fighting and emergency medical service (EMS) duties with public safety personnel trained only in their functional task specialty. The specific problem investigated by the study was the effectiveness of cross-training as a strategy for reducing burnout and improving job satisfaction among public safety personnel. Previous investigations of burnout and job satisfaction among public safety personnel have focused on identifying the factors causing burnout or low job satisfaction (Bowler, 2005; Brough, 2004; McCaslin, et al., 2006; Ortega, Brenner, & Leather, 2007; Regehr, et al., 2006). The research did not examine the effect of cross-training on burnout and job satisfaction among public safety personnel.

The independent variable of the study was cross-training in public safety functions, and the dependent variables of the study were burnout and job satisfaction. The investigation included assessing the effect of the demographic variables of public safety function, age, gender, years or education, years of experience, marital status and race on burnout and job satisfaction among cross-trained public safety personnel. Burnout theory proposed by Maslach and Jackson (1981) and the two factor theory of job satisfaction proposed by Herzberg, Mausner, and Snyderman (1959) provided the general theoretic framework for the study. The scope of the study was limited to assessing factors related to burnout and job satisfaction among public service personnel in three states. The study was subject to researcher bias and self-selection bias because of the need to obtain

permission from public safety organizations to conduct the research with police, fire, and EMS personnel employed by the organization.

The sample population for the study consisted of active duty public safety personnel employed on a full-time basis for more than a year by P.S.Ds serving cities with a population of 75,000 or less. Purposive sampling was used to obtain permission from P.S.Ds to conduct a survey of personnel. After securing permission from a P.S.D to conduct the survey, personnel employed in the department were contacted to solicit participation in the study. The sampling procedure produced 210 responses, with 64 of the respondents receiving cross-training. The data gathering instrument used in the study was a modified form of the Satisfaction Questionnaire developed by Stamps (1997), which was assessed for reliability and validity in a pilot test. The survey questionnaire collected data about the demographics of the respondents. It also collected data about the perceptions of the respondents toward factors related to burnout and job satisfaction using a seven-point Likert scale.

ANOVA was used to assess the data obtained from the survey questionnaire and to test the hypotheses of the study. The ANOVA was based on segregating the respondents into two groups of public safety personnel that had received cross-training and public safety personnel who had not received cross training. When the ANOVA identified statistically significant differences between the two groups of respondents, an analysis of the means were compared to identify the nature of the difference between the two groups. The analysis of the data provided support for accepting the first hypothesis of the study in the alternative form H1: Police, fire, and EMS line personnel in public safety departments using cross-training experience less stress and burnout than police, fire, and EMS line

personnel in public safety departments not using cross-training. The analysis of the data also provided support for accepting the second hypothesis of the study H2: The cross-training of line personnel in public safety departments produces higher job satisfaction than police, fire and EMS line personnel in public safety departments not using cross-training. Demographic variables of primary public safety function, gender, experience, education, and marital status are contributing factors to the relationship between cross-training in public safety personnel and burnout or job satisfaction. Demographic variables, however, had no moderating influence on the effect of cross-training on the participants in the study.

Conclusions

The primary conclusion drawn from the study was cross-training reduces the symptoms associated with burnout and improves job satisfaction among cross-trained public safety personnel. The findings from the study indicated the public safety personnel receiving cross-training experienced less burnout than public safety personnel trained only in their functional specialties. The findings also indicated that cross-trained public safety personnel experienced higher job satisfaction than personnel not receiving cross-training. The cross-training had a greater effect on the variables associated with the hygiene factors than the motivators proposed in the two-factor theory.

The demand-control theory offers a theoretical explanation for the findings of the study about the effect of cross-training for reducing the reported symptoms of burnout among public safety personnel. The cross-training may increase the perception of control over environmental factors production stress among public safety personnel (Pomaki & Anagnostopoulos, 2003). The cross-training theoretically increases the locus of control,

which reduces the level of stress experienced by public safety personnel. An increase in locus of control also influences the ability of public safety personnel to cope with chronic stress or traumatic events leading to burnout (Maslach & Jackson, 1981). In effect, public safety personnel receiving cross-training acquire an additional range of skills that can be applied to resolve problems encountered in the field. The additional range of skills may reduce stress by leading to a resolution of a larger number of problems or issues, reducing frustration and stress.

The findings of the study also suggest cross-training may mediate the effect of stress and burnout on public safety personnel by reducing role overload and role conflict. Thompson, Kirk, and Brown (2005) identified role overload and role conflict as two factors contributing to burnout. Role overload occurs when the employee perceives the necessary tasks required by the organization cannot be completed in the time allowed by the organization. The findings from this study showed cross-training positively influenced perceptions about the amount of time allocated for each assignment, the sufficiency of time to perform duties and the ability to control scheduling. The implication of the finding is that cross-training can reduce some of the stress associated with the time allocated for tasks by providing additional personnel to assist with the performance of some tasks. Role conflict occurs when the organization directly or indirectly expects the employee to assume a different role. The cross-training may have mediated role conflict by providing formal training to personnel about the ancillary duties public safety personnel may be called on to perform in addition to the duties in their functional specialties. The cross-training may reduce role ambiguity by clarifying the

organization's expectations for performance and providing the necessary information to perform the task.

The findings of this study about burnout also conform to the findings of previous research investigating the causes and effects of burnout. Cross-training has a positive effect on perceptions of public safety personnel of support from supervisors and control over scheduling, which are two factors identified by Miller (2007) as significant for contributing to stress and burnout among public safety personnel. The findings further suggest that cross-training improves the perception of control over the factors contributing to stress. Cross-training also had a positive effect on the perception of organizational and interpersonal support among public safety personnel, which Thompson, Kirk, and Brown (2005) determined was a significant factor contributing to stress and burnout among female police officers. Cross-trained personnel also had a more positive perception of administrative policies and practices. This finding was related to the findings of Stetz, Stetz and Blaise (2006), which identified administrative policies and practices as factors contributing to stress and burnout among personnel employed by public safety organizations. The lower burnout reported by public safety personnel receiving cross-training may be the related to the research conducted by Driskell, Johnston, and Salas (2001) and Salas, Bowers, and Eden (2001), which found that stress training could reduce stress and some of the stress-related symptoms associated with burnout. The cross-training may function as a type of stress training providing personnel with additional resources useful for coping with stress in the public safety environment.

The findings of the study also indicate cross-training improves job satisfaction among public safety personnel. The variables related to job satisfaction were categorized

according to the broad framework of the two-factor theory developed by Herzberg, Mausner, and Snyderman (1959). The cross-training of public safety personnel had a positive effect on most of the motivator and hygiene factors assessed in the study. An anomalous finding of the study, however, was the finding indicating cross-trained public safety personnel were less likely to feel a sense of achievement from their work when compared to public safety personnel trained only in their functional specialties. The unexpected finding may have been caused by the complex relationships among the factors proposed by the two factor theory and the possibility that some of the factors have overlapping influences (Herzberg, 2003; Smerek & Peterson, 2007).

A conclusion supported by the findings of the study is cross-training has a greater effect on the hygiene factors related to job satisfaction than the motivators. In the two factor theory, job satisfaction decreases when employees perceive the hygiene factors as insufficient or inadequate. Once the employee perceives the hygiene factors as adequate, however, a further improvement to the hygiene factor will not lead to an increase in job satisfaction (Herzberg, Mausner, & Snyderman, 1959). The findings of the study showed cross training providing an improvement to most of the hygiene factors assessed in the study. Based on the dual factor theory, the improvement to the hygiene factors from cross-training will increase job satisfaction only among public safety personnel who perceived the hygiene factors as inadequate or insufficient in their organizations. While it was beyond the scope of the study to assess the effect of cross-training as an intervention intended to improve job satisfaction, the findings nonetheless suggest that cross-training can produce an improvement in job satisfaction among public safety personnel not satisfied with compensation, relationships with supervisors and coworkers, or

administrative policies and procedures. Previous researchers investigating job satisfaction among public safety personnel also found factors such as administrative policies and procedures and relationships with supervisors can have an effect on job satisfaction but did not examine mitigating strategies (Brough, 2004).

The cross-training of public safety personnel also had a positive effect on the motivators related to job satisfaction in the two-factor theory. However, cross-training had a positive influence on a smaller percentage of motivators when compared to the hygiene factors. In the two-factor theory, an improvement to a motivator leads to an increase in job satisfaction, although the absence of a motivator or a perception that a motivator is inadequate does not reduce job satisfaction (Herzberg, Mausner, & Snyderman, 1959). The findings support the conclusion that cross-training can improve job satisfaction by creating a more positive perception towards some of the motivators influencing job satisfaction. The findings of the study also suggest that cross-training public safety personnel can increase the perception that the hygiene factors are adequate, which can lead to higher job satisfaction among personnel perceiving hygiene factors as inadequate prior to cross-training.

The greater effect of cross-training on the motivators than the hygiene factors may be the result of confounding variables not accounted for in the study. Although a public safety department may adopt cross-training programs and requirements for personnel, the approach to cross-training can vary among organizations. Examining the specific methods used by public safety organizations for using cross-trained personnel was beyond the scope of this study. Some public safety organizations may alter the organizational structure to create a PSD in which police, fire and EMS personnel are fully

integrated. A public safety department using cross-training, however, can maintain a traditional organizational structure with police, fire, and EMS administratively segregated although the personnel may be functionally integrated when they are required to perform tasks. In this type of situation, the cross-training is likely to have a beneficial effect on hygiene factors such as relationship with supervisors and coworkers because of the integration at the task function level. Maintaining police, fire, and EMS as separate administrative departments could result in the continued use of organizational practices and policies reducing the beneficial effect of cross-training on motivators. The organizations examined in this study, however, had fully integrated police, fire and public safety departments.

The findings and conclusions of this study indicating that cross training has an effect for reducing burnout and improving job satisfaction among public safety personnel generally supports the findings of previous researchers examining cross-training in other professions or occupations. McCann et al. (2000) found that cross-training improved the efficiency of military teams in the performance of specific tasks. Public safety personnel can be viewed as analogous to a team responsible for performing task to protect the public from harm. Cross-training expands the capabilities of the individual public safety professional to perform the core task of protecting the public. As a result of the greater ability to perform the core task, the public safety professional experiences less stress and burnout and greater job satisfaction. Stetz, Stetz, and Blaise (2006) suggested that cross-training can reduce stress by eliminating organizational constraints and allowing employees to directly interact with each other outside the bureaucratic boundaries established by the organization. The findings of this study indicated cross-training

improves teamwork and relationships with both supervisors and coworkers, which contributed to lower burnout and improved job satisfaction. The findings of the study also suggested cross-training improved the perception of autonomy among public safety personnel. Kim (2002) found increased perception of autonomy and decision making authority among public safety personnel increased job satisfaction. Some of the findings of the study, however, contradict the findings of previous research to some degree. The findings lead to the conclusion that cross-training has a positive influence on the relationship of public safety personnel with coworkers, which improves job satisfaction. Brough and Pears (2004) determined that no relationship existed among public safety personnel between relationships with coworkers and job satisfaction.

A conclusion of the study is demographic variables do not appear to influence the relationship between cross-training and burnout or job satisfaction with the possible exception of the demographic variable of age. The analysis of the data related to demographic factors in the study indicated that functional public safety specialty, gender, experience, education, marital status and race did not moderate the influence of cross-training on burnout and job satisfaction among public safety personnel. Cross-training had the same effect on personnel with primary training in police, fire and EMS specialties. In addition, education and marital status did not moderate the influence of cross-training on burnout or job satisfaction. While the analysis also showed that gender or race did not moderate the effect of cross-training on burnout or job satisfaction, there was insufficient data to fully support the conclusion that these two variables have no effect on cross-training. The number of respondents that were female or from racial and ethnic groups other than white among the public safety personnel receiving cross-training

was very small and insufficient to support any conclusion from the analysis of the data. There was sufficient evidence in the analysis of the demographic variables, however, to suggest age may be a moderating variable influencing the effect of cross-training among public safety personnel. The findings of the study generally showed that demographic variables did not have a moderating influence on burnout and job satisfaction among cross-trained public safety personnel.

The general conclusion of the study that cross-training reduces burnout and improves job satisfaction confirms the findings of previous studies examining the effect of functional training on public safety personnel. Owens (2006) examined the relationship between training and job satisfaction among managers in different types of public agencies and found a positive correlation between training and higher job satisfaction. The investigation focused on training in functional specialties and concluded that training improves the skills and knowledge of personnel, thereby increasing their ability to cope with different tasks and situations encountered when performing duties related to employment. McCann et al. (2000) also found that cross-training improves task efficiency in military situations when members of a team have different functional specialties. The cross-training allows members of the team to provide more effective assistance and advice when one member of the team is confronted with a difficult or time-consuming task. The positive effect of cross-training on public safety personnel identified in the present study may also be the result of improving knowledge and skills of personnel for the tasks they encounter in field situations. The cross-training increases the range of knowledge and skills the public safety personnel can use to cope with the

different situations they encounter, reducing stress and fostering a more positive perception towards their jobs.

Although public safety personnel have intensive training in their functional specialty related to police, fire or EMS tasks, they often encounter situations outside the boundary of their training. Police may be called on to provide assistance with firefighting while EMS personnel may encounter situations requiring crowd control at times other public safety personnel may not be available. Cross-training provides public safety personnel with a broader set of skills to cope with situations in the field, reducing long-term stress and burnout. Cross-training may also contribute to job satisfaction by increasing the ability of personnel to operate without close supervision and to have greater decision-making autonomy and responsibility. Cross-training may also improve job satisfaction among public safety personnel by increasing collaboration with coworkers and supervisors. Cross-training increases interdependence among police, fire and EMS personnel, which improves the relationships between personnel with different functional specialties. It may also create a greater number of advancement opportunities within the organization because of the need for additional line supervisors to coordinate cross-functional activities. The way in which cross-training influences factors such as advancement opportunities or the sense of achievement, however, may be related to factors such as organizational structure.

Recommendations

Based on the findings and conclusions of this study, municipalities should consider using cross-training to reduce burnout and improve job satisfaction among public safety personnel. While cross-training increases the general training costs for public safety departments, it can produce a sufficient return on investment to justify the cost by reducing turnover rates among police, fire, and EMS personnel. Further research, however, should be conducted to determine the specific type of cross-training program that maximize the ability of an organization to achieve its public safety objectives while providing a benefit to personnel from lower burnout and higher job satisfaction.

The findings of this study led to the conclusion that differences in the perception of the factors related to burnout and job satisfaction exist between public safety personnel receiving cross-training and public safety personnel trained only in their police, fire or EMS functional task specialties. The analysis of the data also indicated that cross-training reduces burnout and increases job satisfaction among cross-trained public safety personnel. In the present study, cross-training was a generic variable including any training in public safety functions not directly related to the primary function of personnel. The content and extent of cross-training was beyond the scope of the study and was not examined. The categorization of a respondent as cross-trained was based solely on the self-reported perception of the respondents that they had been cross-trained. As a result, future research should be conducted to confirm the findings of the present study with a population of public safety personnel receiving cross-training with specific content and for a known period of time. Factors such as the content of the training, the duration of the training, and the organizational expectations about the use of the training

can influence the effectiveness of cross-training. The research should use a pre-test and post-test approach in which the cross-training is considered an intervention influencing burnout and job satisfaction. In addition, the research should examine the effect of different content and duration of cross-training on its effects on burnout and job satisfaction among public safety personnel. This type of research can more definitively establish the relationship between cross-training, burnout and job satisfaction and the training practices necessary to achieve the optimal organizational benefit. Identifying the most effective type of cross-training program or approach is also important for justifying the training expense and necessary changes to organizational structure to use cross-trained personnel to meet public safety objectives.

Additional research should also be undertaken with larger populations of public safety personnel, focusing on large urban departments. The sample population for the present study involved public safety personnel employed in smaller cities and municipalities. An examination of the differences between cross-trained and traditionally trained public safety personnel in larger departments serving major cities could determine if the positive effect of cross-training on burnout and job satisfaction occurs in all public safety environments. Larger public safety departments can be influenced by different organizational and environmental variables such as more layers of administration or the demographics of the population in the urban setting. The research in larger urban centers could incorporate the a pre-test and a post-test approach to determine the effect of a specific cross-training program on burnout and job satisfaction among public safety personnel.

Future research should also investigate further the effect of gender, race and age on the effect of cross-training on public safety personnel. The sampling in this study was insufficient to draw a conclusion about the moderating effect of gender and race on the relationship between cross-training and burnout and job satisfaction among public safety employees. A larger sampling using a stratified approach could be used to obtain data about the effect of gender and race, if any, on the effect of cross-training. This type of approach would attempt to ensure a sufficient number of women and individuals from different races and ethnicities were included in the sampling. Additional research should also be conducted to clarify the moderating effect of age on burnout and job satisfaction among cross-trained public safety personnel.

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Appendix A

SURVEY QUESTIONNAIRE

I am a graduate student conducting research into the effect of different types of training on police, fire and emergency medical services personnel. The following survey is part of this research. Although there is no compensation for responding to the questions in this survey, the information that you will provide is important for developing a better understanding of training for public safety personnel that can potentially provide a benefit for your department. All information that you provide will be held in the strictest confidence. Please take a few minutes to complete the survey and return in by mail with the enclosed envelope. Thank you in advance for your participation and cooperation.

Do not include your name or the name of your agency anywhere on this form**.**

Section I

1. My primary job is:

Police _____ Fire_____ EMS_____

Public safety Officer_____

2. The approximate population of the city my department services is:

5,000 – 25,000 25,001 – 50,000

50,001 – 75,000 75,001 – 100,000

3. I am

Male _____ Female _____

4. I have been employed in public safety for _____ years.

5. My highest education level is: GED _____

High School _____ Associate Degree _____

Bachelor's Degree _____ Master's Degree _____

6. Number of years of education: _____

7. Does your department cross-train personnel in police, fire, and EMS functions?

Yes _____ N0 _____

8. I am _____ years of age.

9. I am married _____. Single _____. Divorced _____.

10. I am white _____ black _____. American Indian _____

Asian _____ Hispanic _____. mixed _____.

Section II

Please circle the number corresponding to the degree that most accurately describes your agreement with the following statements. For example, circling 1 means that you strongly disagree with the statement. Circling 7 means you strongly agree with the statement. If you neither agree nor disagree with the statement, circle 4.

		Strongly Disagree						Strongly Agree
1.	My present salary is satisfactory.	1	2	3	4	5	6	7
2.	The line personnel in my occupation have a stable work assignment.	1	2	3	4	5	6	7
3.	The line staff has sufficient control over scheduling their own shifts in my agency.	1	2	3	4	5	6	7
4.	Most people in my community appreciate the importance of police, fire fighters and EMS personnel.	1	2	3	4	5	6	7
5.	It is hard for new personnel to feel at home in my agency.	1	2	3	4	5	6	7
6.	There is no doubt at all in my mind that	1	2	3	4	5	6	7
7.	There is a great gap between the administration of my agency and the daily problems of the line personnel.	1	2	3	4	5	6	7
8.	I feel I have sufficient input into policy and procedures of the agency.	1	2	3	4	5	6	7
9.	Considering what is expected of the line personnel, the pay we get is reasonable.	1	2	3	4	5	6	7
10.	I have too much responsibility and not enough authority.	1	2	3	4	5	6	7
11.	There is a lot of team work between line personnel and supervisors.	1	2	3	4	5	6	7
12.	The present rate of increase in pay for personnel in my agency is not sufficient.	1	2	3	4	5	6	7
13.	I am satisfied with the types of activities that I do on my job.	1	2	3	4	5	6	7
14.	The line personnel on my shift are not as friendly and out going as I would like.	1	2	3	4	5	6	7
15.	I have plenty of time and opportunities to discuss problems with other personnel.	1	2	3	4	5	6	7
16.	There is plenty of opportunity for agency personnel to participate in the administrative decision making process.	1	2	3	4	5	6	7
17.	A great deal of independence is permitted, if not required.	1	2	3	4	5	6	7
18.	What I do on my job does not add up to anything really significant.	1	2	3	4	5	6	7
19.	I am somewhat frustrated because all of my activities seem programmed for me.	1	2	3	4	5	6	7
20.	From what I hear about my profession in other municipalities, personnel in my							

	agency are being fairly paid.	1	2	3	4	5	6	7
21.	It makes me proud to talk to other people about what I do on my job.	1	2	3	4	5	6	7
22.	Administration generally understands and appreciates what line personnel do.	1	2	3	4	5	6	7
23.	If I had the decision to make all over again, I would still go into my profession.	1	2	3	4	5	6	7
24.	I have all the voice I want in planning policies and procedures for my agency and unit.	1	2	3	4	5	6	7
25.	The administration generally consults with the line staff on daily problems and procedures.	1	2	3	4	5	6	7
26.	I have the freedom in my work to make important decisions as I see fit, and can count on my supervisors to back me up.	1	2	3	4	5	6	7
27.	Policing fire fighting and emergency medical services are not widely recognized as being important professions.	1	2	3	4	5	6	7
28.	There is too much paperwork and clerical duties.	1	2	3	4	5	6	7
29.	Supervisors generally cooperate with line staff in my agency.	1	2	3	4	5	6	7
30.	I feel that I am supervised more closely than necessary.	1	2	3	4	5	6	7
31.	It is my impression that many line personnel in my agency are dissatisfied with their pay.	1	2	3	4	5	6	7
32.	I think I could do a better job id I didn't do it all the time.	1	2	3	4	5	6	7
33.	There is a good deal of team work and cooperation between various levels of personnel in my agency.	1	2	3	4	5	6	7
34.	There are not enough opportunities for advancement in my agency.	1	2	3	4	5	6	7
35.	On my shift supervisors make all the decisions. I have little control over my own work.	1	2	3	4	5	6	7
36.	There is a lot of ran consciousness in my unit: line personnel seldom mingle with those who have less experience or							

	different education levels.	1	2	3	4	5	6	7
37.	I have sufficient time to perform my duties.	1	2	3	4	5	6	7
38.	I am sometimes required to do things on my job that are against my professional judgment.	1	2	3	4	5	6	7
39.	Administrative decisions in my agency interfere too much with my duties.	1	2	3	4	5	6	7
40.	I wish administration would show more respect for the skill and knowledge of the line staff.	1	2	3	4	5	6	7
41.	I could deliver better service if I had more time on each assignment.	1	2	3	4	5	6	7
42.	The administration in this agency looks down too much on the line personnel.	1	2	3	4	5	6	7
43.	My particular job doesn't require much skill or know-how.	1	2	3	4	5	6	7
44.	Upgrading of pay schedules for line personnel is needed in my department.	1	2	3	4	5	6	7
45.	I am considering seeking employment outside the public safety field.	1	2	3	4	5	6	7
46.	I have trouble relaxing on and off the job.	1	2	3	4	5	6	7
47.	My family and home life is not impacted by my job.	1	2	3	4	5	6	7
48.	I feel tired even though I have gotten plenty of sleep.	1	2	3	4	5	6	7
49.	I am dissatisfied with my work.	1	2	3	4	5	6	7
50.	I feel sad for no apparent reason.	1	2	3	4	5	6	7
51.	I am irritable and snap at people.	1	2	3	4	5	6	7
52.	I avoid people at work and in my private life.	1	2	3	4	5	6	7
53.	I have trouble sleeping at night because I worry about work.	1	2	3	4	5	6	7
54.	I don't like going to work.	1	2	3	4	5	6	7
55.	I don't have much to look forward to in in my work.	1	2	3	4	5	6	7
56.	My work seems pointless.	1	2	3	4	5	6	7
57.	I have repetitive nightmares of dangerous job related situations.	1	2	3	4	5	6	7
58.	I avoid the scene of traumatic incidents.	1	2	3	4	5	6	7
59.	My memory and concentration are not as good as they once were.	1	2	3	4	5	6	7
60.	I feel that others receive preferential							

Appendix B

CENTRAL TENDENCY AND DISPERSION OF DATA FOR ALL RESPONDENTS

Question	Mean	Median	Mode	Std. Dev.	Skew.	Kurt.
Achievement						
6	5.97	4	3	1.63	-1.83	3.59
21	5.78	6	6	1.35	-1.63	2.87
23	5.63	6	7	1.71	-1.30	.87
Recognition						
4	5.44	6	6	1.35	-1.32	1.22
27	5.48	6	7	1.64	-1.03	.16
Nature of the Work						
2	4.33	4	5	1.73	- .46	-.75
3	2.97	5	5	1.65	.46	-.90
13	5.40	6	6	1.20	-1.29	2.41
18	6.03	6	7	1.33	1.75	2.81
19	410	6	7	1.50	-.121	-.703
28	3.22	2	5	1.88	-.80	-.16
32	4.27	4	5	1.69	.05	-1.10
37	4.14	4	5	1.69	-1.09	-.21
41	4.27	4	5	1.74	-.09	-.91
43	1.56	1	1	1.07	2.93	10.05
Autonomy						
10	4.20	5	5	1.58	.24	-.87
17	4.18	4	5	1.60	-.30	-.82
26	3.98	4	5	1.59	-.38	-.79
38	5.40	6	6	1.54	-1.94	-.08
Advancement						
34	5.47	6	7	1.54	-1.07	.35

Question	Mean	Median	Mode	Std. Dev.	Skew.	Kurt
Administration						
7	3.91	4	5	1.63	.17	-.95
22	3.84	4	5	1.63	.21	-.52
25	2.98	3	2	1.56	.33	-1.13
39	3.84	5	5	1.68	.02	-.98
40	4.39	5	5	1.63	-.24	-.80
42	3.74	3	3	1.69	.78	-.83
Policy						
8	3.18	3	1	1.71	.28	-.87
16	2.96	3	3	1.48	.50	-.28
24	2.86	3	1	1.48	.38	-.66
Relationship with Supervisors						
11	4.52	5	5	1.38	-.65	-.22
29	4.67	5	5	1.26	-.83	.56
30	4.03	4	5	1.37	.67	-.09
35	3.32	3	3			
Compensation						
1	4.11	4	5	1.37	-.22	-.65
9	3.73	4	3	1.51	-.08	-.87
12	3.07	3	2	1.49	-.67	-.23
20	4.48	5	5	1.59	-.13	-.78
31	3.28	4	3	1.64	-.36	-.82
44	5.09	3	5	1.34	-.67	.35
Interpersonal Relationships						
5	5.19	6	6	1.42	.99	.62
14	5.52	6	6	1.39	1.33	1.80
15	4.27	4	5	1.44	-.22	-.26
36	2.87	3	3	1.40	.87	.44

Question	Mean	Median	Mode	Std. Dev.	Skew.	Kurt
Burnout						
45	2.21	1	1	166	1.27	.657
46	2.90	3	1	1.76	.56	-.86
47	3.17	3	3	1.53	.68	-.06
48	3.31	3	1	1.98	.37	-1.09
49	2.19	2	1	1.49	1.27	1.04
50	2.04	2	1	1.37	1.52	2.22
51	2.30	2	1	1.58	.98	-.11
52	2.22	2.	1	1.53	1.13	.30
53	2.69	2	1	1.92	.77	-.85
54	2.04	2	1	1.35	1.43	1.65
55	2.15	2	1	1.44	1.39	1.37
56	1.87	1	1	1.22	1.51	1.88
57	2.70	2	1	1.93	.67	-1.08
58	1.70	1	1	1.12	1.59	1.63
59	2.50	2	1	1.60	.76	-.60
60	4.33	5	6	2.05	-.26	-1.22