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# Effects of Stress on 9-1-1 Call-Takers and Police Dispatchers: A Study at the San Jose Police Department

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EFFECTS OF STRESS ON 9-1-1 CALL-TAKERS AND POLICE DISPATCHERS: A  
STUDY AT THE SAN JOSÉ POLICE DEPARTMENT

A Thesis

Presented to

The Faculty of the Department of Justice Studies

San José State University

In Partial Fulfillment

Of the Requirements for the Degree

Master of Science

by

Kimberly D. Turner

May 2015

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EFFECTS OF STRESS ON 9-1-1 CALL-TAKERS AND DISPATCHERS: A STUDY  
AT THE SAN JOSÉ POLICE DEPARTMENT

by

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APPROVED FOR THE DEPARTMENT OF JUSTICE STUDIES

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## ABSTRACT

### EFFECTS OF STRESS ON 9-1-1 CALL-TAKERS AND POLICE DISPATCHERS:

#### A STUDY AT THE SAN JOSÉ POLICE DEPARTMENT

by Kimberly Turner

This research addresses the significant gap in literature related to stress among 9-1-1 call-takers and dispatchers. The relationship between perceived stress and work-life balance, fairness at work, support at home, and work control as well as physiological and psychological outcomes is examined. Survey responses were collected during the summer of 2012 from 89 police 9-1-1 call-takers and radio dispatchers of the San José Police Department Communications Division in San José, California. Using hierarchical multiple regression analysis, I found those who enjoy a balance between work and personal life experience less stress. Also, greater stress is associated with more psychological and physiological problems. As expected, those who have higher perceptions of fairness at work, greater support at home, and more work control feel a greater satisfaction with life. Additional research specific to police call-takers and dispatchers is needed to further understand the relationship of perceived stress with these work classifications.

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The work of the true first responder is often devoid of accolades, but it is the work of noble, honorable, and gentle people whose faceless voices provide the assurances of calm, the voice of reason, and the bark of the sheepdog as protector of the pack. It is my sincerest desire that the words contained in this body of work rise and lift to become a megaphone awakening those that slumber to the suffering of those that sit guard protecting and preserving our expectation of safety and preservation of life.

## Table of Contents

List of Tables.....	viii
Chapter I: Introduction.....	1
Chapter II: Literature Review.....	10
Fairness: Civilian versus Sworn.....	10
Traumatic Stress: Physiological and Psychological Outcomes.....	14
Institutional Stressors.....	19
Chapter III: Research Methods.....	25
Participants and Procedures.....	25
Dependent Variables.....	27
Perceived Stress.....	27
Physiological Outcomes.....	27
Psychological Outcomes.....	28
Satisfaction with Life.....	29
Independent Variables.....	29
Work Control.....	29
Work-Life Balance.....	30
Work Unfairness.....	30
Institutional Fairness.....	31
Support at Home.....	31
Control Variables.....	32
Chapter IV: Results.....	34

Chapter V: Discussion.....	47
Limitations.....	49
Conclusion.....	50
References.....	52
Appendix A.....	64
Appendix B.....	66



## List of Tables

Table 1. Questions for the Perceived Stress Variable.....	27
Table 2. Questions for the Physiological Outcomes Variable.....	28
Table 3. Questions for the Psychological Outcomes Variable.....	28
Table 4. Questions for the Satisfaction with Life Variable.....	29
Table 5. Questions for the Work Control Variable.....	30
Table 6. Questions for the Work-Life Balance Variable.....	30
Table 7. Questions for the Perceived Work Unfairness Variable.....	31
Table 8. Questions for the Institutional Fairness Variable.....	31
Table 9. Questions for the Support at Home Variable.....	32
Table 10. Control Variables in the Hierarchical Regression Models: Sex.....	32
Table 11. Control Variables in the Hierarchical Regression Models: Education Level.....	33
Table 12. Control Variables in the Hierarchical Regression Models: Age.....	33
Table 13. Control Variables in the Hierarchical Regression Models: Years on the Job.....	33
Table 14. Questions and Responses for the Perceived Stress Variable.....	34
Table 15. Results of Hierarchical Regression on Perceived Stress with Independent Variables and Control Variables Ordered by Unstandardized Coefficients ( <i>b</i> ), Standard Errors (SE), and Standardized Coefficients ( $\beta$ ), $R^2$ .....	35
Table 16. Questions and Responses for the Physiological Outcomes Variable.....	37

Table 17. Results of Hierarchical Regression on Physiological Outcomes with Independent Variables and Control Variables Ordered by Unstandardized Coefficients ( <i>b</i> ), Standard Errors (SE), and Standardized Coefficients ( $\beta$ ), $R^2$ .....	38
Table 18. Questions and Responses for the Psychological Outcomes Variable.....	39
Table 19. Results of Hierarchical Regression on Psychological Outcomes with Independent Variables and Control Variables Ordered by Unstandardized Coefficients ( <i>b</i> ), Standard Errors (SE), and Standardized Coefficients ( $\beta$ ), $R^2$ .....	40
Table 20. Questions and Responses for the Satisfaction with Life Variable.....	41
Table 21. Questions and Responses for the Work Control Variable.....	42
Table 22. Questions and Responses for the Work-Life Balance Variable.....	43
Table 23. Questions and Responses for the Work-Unfairness Variable.....	43
Table 24. Questions and Responses for the Institutional Fairness Variable.....	44
Table 25. Questions and Responses for the Support at Home Variable.....	44
Table 26. Results of Hierarchical Regression on Satisfaction with Life with Independent Variables and Control Variables Ordered by Unstandardized Coefficients ( <i>b</i> ), Standard Errors (SE), and Standardized Coefficients ( $\beta$ ), $R^2$ .....	45

## Chapter I: Introduction

The modern workplace often demands employees to assume a myriad of responsibilities, which may create a conflict with the requirements of family obligations such as the care of dependent children, thus creating a work-life balance strain (Jung Jang, Zippay, & Park, 2012). The conflicting demands of work and family responsibility may manifest and exhibit as stress or other psychological and physiological symptoms, such as exhaustion or depression (Frone, 2000). Stress is defined as a nonspecific response of the body to any external or internal demand (P. Burke, 1991). Additionally, employees experiencing difficulty with work-life balance and less satisfaction with their work environment experience a higher rate of emotional exhaustion as well as a lower level of personal satisfaction with life or personal accomplishments and depersonalization (Umene-Nakano, Kato, Kikuchi, Tateno, Fujisawa, Hoshuyama, & Nakamura, 2013).

Burnout has been described as a state of both physical and emotional exhaustion (Pines, Aronson, & Kafry, 1981), which may produce maladaptive coping mechanisms to stressful working conditions (Sprang, Clark, & Whitt-Woosley, 2007). Burnout associated with those professions dealing with human or people services is defined by Maslach and Jackson (1981) as a multidimensional condition consisting of emotional exhaustion, depersonalization, and a reduced sense of accomplishment. This psychological condition manifests itself when one feels an inability to make a positive impact on others or is frustrated by the unbearable stressful aspects of one's job. In addition, emotional exhaustion has been linked to poor job performance and poor work-life balance (Naz, Gul, & Haq, 2011). Studies have shown that employees that report an equitable balance between the demands of work and family often report improved

mental and physical health (Frone, Russel, & Barnes, 1996). Moreover, research has indicated that work-life conflict may decrease satisfaction with life and job satisfaction (Naz et al., 2011).

Private industry has addressed these issues with alternative schedules, the integration of family-friendly workplaces, and job sharing. In public sector employment, government employers are offering increased work-schedule flexibility and childcare options, including telecommuting. The alternative methods in place to achieve a positive work-life balance for employees have been shown to positively affect an employee's perception of job satisfaction, work-life balance, life satisfaction, and mental well-being, although the results are often predicated on the type of demands the job imparts on the employee and the employee's interpretation of the strain it creates, and not all alternative options alleviate the stressfulness of certain job demands (Saltzstein, Ting, & Saltzstein, 2001). Failing to achieve a balance between the demands of work and personal responsibilities to family or society has shown to increase levels of stress and stress-related illnesses (Hobson, Delunas, & Kesic, 2001).

Stress in the workplace also plays a role in the physical health of employees and is associated with cardiovascular disease, depression, and hypertension (Johnston, 2007). Prolonged exposure to occupational stress has also been correlated with exhaustion, which is defined as fatigue, demoralization, and irritability (Yoo & Franke, 2011). Studies have also indicated that chronic exhaustion may predict up to 60% of all first-time cardiac events (Kop, Hamulyak, Pernot, & Appels, 1998). Moreover, research has shown that one of the many consequences of high employee stress is an increase in absenteeism and lower productivity (Hobson et al., 2001).

The public safety network of first responders is comprised of human service workers, including public safety call-takers, dispatchers, and police officers, who play critical roles in the

mitigation of emergency response and services. These workers live through the rigors of stressful working conditions, which include experiencing the perpetration of violence, loss of human life, shift work, and work demands away from family, as well as the potential for physical and psychological effects from long-term exposure to emergency conditions. Within the world of the law enforcement community, there is substantial research literature journaling the effects of occupational stress on sworn law enforcement personnel. In this realm, occupational stress is generally accepted as a routine component for police officer careerists (Madonna, 2002; Maguen et al., 2009; Shane, 2010). Literature suggests that exposure to long-term stress among police officers has an overall negative effect on both physical and mental health, leading to the manifestation of chronic diseases (Pagon, Spector, Cooper, & Lobnikar, 2011; Stinchcomb, 2004). The most commonly recognized of these diseases are hypertension, cardiovascular disease, cancer, leukemia, diabetes, and post-traumatic stress disorder (PTSD) (Asmundson & Stapleton, 2008; Briggs, Jihong, Wilson, & Ling, 2008; Pierce & Lilly, 2012; Rees & Smith, 2008; Sheehan & Van Hasselt, 2003; Yoo & Franke, 2011).

The research primarily addresses stress among police officers, but there is a need to study the potential effects of stress as related to police call-takers and dispatchers since they are exposed to similar stress conditions as their sworn counterparts (Kirmeyer, 1988). Historically, research in these job classifications has been intermittent since the first recognized study conducted by Doerner (1987). Doerner's limited research of 21 dispatchers initiated the scholarly discussion about stress among 9-1-1 dispatchers. The results indicated that dispatchers are generally satisfied with their jobs, but are less pleased with organizational barriers that they perceive to inhibit service delivery. In other words, the restrictions within the organization are perceived to delay or inhibit aid to those who are calling for help, which, for the call-taker or

dispatcher is in direct opposition to his or her primary duty to render immediate aid or assistance to either the public or field personnel. Nearly two decades later, Troxell (2008), working with 497 respondents within the state of Illinois, found that 16.3% of 9-1-1 dispatchers and call-takers might be at risk of experiencing secondary traumatic stress disorder (STSD) symptoms and that 14.7% reported burnout. In both cases, there was a strong correlation with both potentially traumatic and traumatic calls for service. Later, Pierce and Lilly (2012) conducted research with a convenience sample of 171 dispatchers, comprised of various police agencies throughout the Midwest. Of the different call types examined, about a third of the respondents reported feeling helplessness, horror, or fear in reaction to a call. Their analysis concludes that although dispatchers may not experience a direct physical integrity threat, they may still be at risk of developing PTSD, a disease that by historical definition requires direct exposure to a traumatic stressor and manifests over time. Thus, the job of the 9-1-1 call-taker and dispatcher warrants further research, analysis, and discussion as related to traumatic stress.

For the purposes of this research, the job classifications of “call-taker” and “dispatcher” are defined as follows: a call-taker is a professional civilian law enforcement employee who receives both emergency (9-1-1) and nonemergency (3-1-1) calls from members of the public when help from police officers, firefighters, medical emergency personnel, emergency animal services, other government services, or any combination thereof are required (Bureau of Labor Statistics, U.S. Department of Labor, 2012).

By contrast, a dispatcher is a professional civilian law enforcement employee who relays information to sworn field personnel via two-way radio and electronically with computer-aided dispatch (CAD) software. The dispatcher provides information that has been received and processed by a call-taker and allocates the appropriate field personnel and agency to respond to

the call for service. Dispatchers monitor the status of field personnel and direct necessary resources to accomplish tasks in tactical and strategic situations (Bureau of Labor Statistics, 2012). In addition, they immediately document calls for service with supplemental details as relayed to them by both members of the public and law enforcement personnel.

The titles of “call-taker” and “dispatcher” are not interchangeable terms (Reaves, 2011) because a call-taker is not a dispatcher; however, a dispatcher is trained as a call-taker and often works in either capacity during his or her work shift (San José Police Department, 2006). Nationally, call-takers and dispatchers comprise roughly 30% of all civilian employees in local law enforcement agencies and about 13% of all police employees, including sworn personnel (Reaves, 2010). As of 2008, there were approximately 18,000 state and local law enforcement agencies employing 766,000 sworn officers and 369,000 civilian employees in the United States (Reaves, 2011), 100,000 of whom are call-takers/dispatchers (Bureau of Labor Statistics, 2007). Furthermore, about 75% of all police departments serve a population of less than 10,000 people, and nearly half of all police agencies employ fewer than 10 sworn police officers (Reaves, 2011). Dispatchers represent a small portion of the law enforcement community, roughly 7.6%, but they serve as a vital link in community service and public safety (Bureau of Labor Statistics, 2007; Reaves, 2011).

In the State of California, the Commission on Peace Officer Standards and Training (POST) delineates the professional standards and guidelines for both classifications. In part, the standards require dispatchers to complete professional testing and training as regulated by California Penal Code § 13510(c) (2010). The testing includes a written examination, an interview, a background investigation, a medical examination, and psychological screening. Except for a physical agility test, dispatch applicants are required to meet the exact same pre-

employment and background requirements as police officers. Similarly, dispatchers are required to attend a multi-week basic police dispatch academy in which state regulated classroom instruction and testing is required for successful completion. The learning domains governing the dispatch academy parallel the learning outcomes and objectives taught in basic police officer academies.

As with police officers, upon graduation from the basic academy, dispatchers receive a POST Basic Academy Certificate. After completing a one-year employment probationary period with a law enforcement agency as a call-taker or dispatcher, they receive a Basic POST Dispatch Certificate. With progress in education, professional training, and tenure, they may achieve advanced certification in the form of an Intermediate or Advanced POST Certificate. The certification process is an acknowledgement of the rigors and professionalism of civilian dispatch careerists. Additionally, the certification is parallel to that of sworn police officers (Commission of Peace Officers Standards and Training, 2014, Section B, Regulation 1018).

Despite the administrative similarities, police officers in the State of California are extended additional medical and mental health benefits, of which call-takers and dispatchers are specifically excluded. Those benefits include coverage for the exhibition of stress disorders, in which particular categories of disease(s) are considered presumptive illnesses (Cal. Lab. Code §§ 3212-3213, 2011). In California Labor Code § 4850 (2013), cancers, leukemia, heart trouble including hypertension, pneumonia, hernias, tuberculosis, meningitis, complications due to biochemical exposure, lower back impairment, and methicillin-resistant *Staphylococcus Aureus* (MRSA) are recognized. Moreover, many of these presumptions extend up to 60 months from the last date an officer works. The William Dallas Jones Cancer Presumption Act of 2010 went into effect on January 1, 2011, and extends the existing statute of limitations from five years up



to 10 years from the last date worked. The benefits of California Labor Code § 4850 (2013) are also inclusive of nonphysical integrity threats such as psychological, physiological, and emotional stressors, which are recognized as occupational stress experienced by police officers (Cal. Assemb. B. 1227, 2009).

Stress can be grouped into three classes: acute traumatic stress, acute sub-threshold stress, and chronic stress response (National Emergency Number Association [NENA] PSAP Operations Committee, 9-1-1 Acute/Traumatic and Chronic Stress Working Group, 2013). During the course of their duties, a police call-taker or dispatcher experiences repeated secondary exposure to life and death situations, whether it be through an officer in the field or a citizen calling 9-1-1, and this repeated exposure would fall into the class of acute traumatic stress (NENA PSAP Operations Committee, 2013). Furthermore, the unique working conditions of 24-hour shift work, along with sustained interaction with the public, that both field and dispatch personnel experience would meet the criteria of acute sub-threshold stress. Acute traumatic stress and sub-threshold stress may lead to secondary traumatic stress disorder (STSD) (Kulkarni, Bell, Hartman, & Herman-Smith, 2013). The final class, chronic stress response, occurs when there is long-term exposure to ongoing and repeated activation of the acute stress response or a failure to resolve the stress activation (NENA PSAP Operations Committee, 2013; Salston & Figley, 2003). This response is readily apparent as dispatchers and call-takers, unlike their field counterparts, are often left without any resolution as to the outcome of a call for service (Troxell, 2008) because their role in the law enforcement response mechanism is to begin the process for service and not to determine the disposition.

PTSD, as defined by the American Psychiatric Association (2000), is specific behavior exhibited 30 days or more after exposure to a traumatic event. The behavior includes symptom

clusters such as intrusive recollections, avoidant activities, or emotional numbing including hyperarousal. The symptoms must exhibit themselves for more than one month following the initial exposure to the traumatic event, and the disturbance must have caused clinically significant distress or impairment in occupational, social, or other important areas of functioning.

Secondary traumatic stress (STS) is the stress that results from wanting to help a traumatized person, which, by definition, encompasses the work of call-takers and dispatchers. When that stress exhibits symptomatology consistent with PTSD, it is categorized as secondary traumatic stress disorder (STSD). STSD is the specific stress experienced by one who has experienced a traumatic event involving a threat to the physical integrity of another person or has learned about an unexpected or violent death, serious harm, or threat of death or injury to a family member or other close associate (American Psychiatric Association, 2000; NENA PSAP Operations Committee, 2013).

California Labor Code § 4850 (2013) provides that sworn police officers are entitled to leave work for up to one year while recovering from a job-related (industrial) injury, which includes stress-related injuries or diagnosis, and continue to receive their full salary without the deduction of taxes (Coleman, 2005). Due to the nature of many job-related injuries, this benefit may stop and start at different times and may be used for up to five years from the onset of the initial injury. An officer receives these benefits in lieu of the standard state worker's compensation benefit (Cal. Lab. Code § 4850, 2013; Coleman, 2005). Conversely, police dispatchers are subjected to the state contracted worker's compensation benefits, which, depending on the worker's compensation carrier, limit the employee to a maximum of two-thirds of their taxable salary, and they are not extended the right to recover from a psychological job-related illness or injury while off from work (Coleman, 2005).

While the severities of police work justify that benefits be extended to all sworn personnel, the California Labor Code does not recognize police dispatchers or 9-1-1 call-takers. Yet, interestingly, other occupations are included under § 4850 (2013), such as officers or employees of a probation office department, juvenile service officers, group counselors, firefighters, district attorney investigators, wardens, and lifeguards. The law specifically excludes telecommunications workers and defines the work of 9-1-1 call-takers and police dispatchers as “telephone operators,” stating that their work does not fall within the scope of active law enforcement service (Cal. Assemb. B. 1227, 2009; Cal. Lab. Code § 4850, 2013; Coleman, 2005). Despite their exclusion in § 4850 (2013), civilian call-takers and dispatchers are exposed to the same or similar psychological, physiological, and emotional stressors and may suffer the same long-term exposure to those conditions as police officers (Pierce & Lilly, 2012). Yet, they are not afforded the expansion of health care benefits as their sworn counterparts (Doerner, 1987; Miller, 1995; Sewell, 2006).

Although the body of knowledge examining stress outcomes and sworn police officers is vast, the examination of long-term stress outcomes as it relates to professional dispatch staff has been rather limited in the law enforcement community. A partial explanation for the void of research may be the structure of policing organizations as a whole especially when coupled with the insular and technical nature of police dispatching. The two create an atmosphere where only those inside of the organization are acutely aware of the mechanisms unique for study. Therefore, the purpose of this research is to address the significant gap in literature as it pertains to professional civilian police employees that work in the capacity of call-takers and dispatchers by examining the potential relationship between self-reported perceived stress levels, work

environment, and physiological and psychological outcomes. The relevant factors of stress and potential policy implications are discussed in light of reported stress levels (Chess, 1960).

## Chapter II: Literature Review

### **Fairness: Civilian versus Sworn**

The civilianization of law enforcement is parallel to the male labor depletion experienced during World War II in that women moved into roles traditionally held by males. Subsequent to the war, women maintained their new roles as civilian employees in police agencies while their male counterparts took on the role of sworn personnel. Social changes including civil unrest in urban centers, economic downturns, and an increase in crime justified the retention and expansion of hiring of civilian employees to allow sworn personnel to be deployed more effectively for organizational justice missions (McCarty & Skogan, 2013; Reaves, 2010). While the economic benefit to the organization may be perceived as positive because civilian employees are paid less, have smaller benefit packages, and generally work more days per year. Civilian employees were initially perceived as a threat to job security and as holding values inconsistent with the modern paramilitary code of sworn personnel. The inconsistent values aided in the perception that the work of civilians diminished the importance of policing which may contribute to organizational stress, fairness, and job satisfaction (Forst, 2000; McCarty & Skogan, 2013) because of this civilian employee may perceive that they are less valued members of a law enforcement organization. For the most part, traditional police agencies throughout the U.S. staff call center operations with professional civilian employees that work as dispatchers and call-takers (Bureau of Labor Statistics, 2012). While field officers deal with one emergency or singular event at a time, the dispatcher must deal with multiple emergencies and events at the same time (Weber, 1987). The dispatcher must deal with each individual officer simultaneously,

receiving calls for service, updating officers' locations, dispatching calls for services, documenting self-initiated field activity, and completing wants and warrants checks all while processing routine requests from field officers and/or emergency life or death radio communications. The stressors placed on the dispatcher are compounded by the number of officers the dispatcher is responsible for at any given moment, a condition that is exacerbated by the additional burden of providing service for citizens requesting police and/or medical assistance.

Nationally, dispatchers and call-takers account for roughly less than 8% of all police department employees (Reaves, 2010). Generally, they are not deployed in the field and are not in the forefront of field activities unless they are members of tactical dispatch response teams, which deploy in the field with special weapons and tactics units (SWAT) for extreme situational emergencies. For the most part, dispatchers are excluded from common accolades, recognition, and the glory of police work bestowed upon their sworn counterparts (Chess, 1960; Miller, 1995). Call-takers and dispatchers are support services personnel and serve as the initial contact for the public and act as professional representatives of their respective police agency. The information the 9-1-1 call-taker or dispatcher receives is the catalyst for emergency response for the citizen, and it provides the basis on which officers begin their preliminary investigation(s) in the furtherance of their duties. However, as behind-the-scenes support services employees, the call-takers' or dispatchers' work may go unnoticed by both field officers and supervisors (Imbens-Bailey & McCabe, 2000; Scott & Percy, 1983).

The behavior of both officers and dispatchers is fostered by the uniquely constrained organizational structure of police work itself inasmuch as the strict legal and organizational framework of their job performance tasks limits both classifications (Wilson, 1979). The

behavior of both officers and dispatchers becomes normative and expected within the department. This may be best explained by the inherent nature of police organizations themselves because the work produced by policing is not a commodity exchanged on the open market and so the organization, in essence, is not rewarded for effectiveness and efficiency to control the work process. Rather, assessments of police activity, including the work of dispatchers and call-takers, have limited utility. The environment has very little to do with capitalist production economies or technical capabilities. Thus, the organizational structure, policies, and procedures rooted in the institution reflect the homogeneous values of the department. Given that police organizations are highly structured with formal operations (Crank & Longworthy, 1992), the marginalization of civilian employees, particularly dispatchers and call-takers, is, in essence, normative behavior. The incongruous organizational mission of sworn versus civilian fosters these conditions. While an officer is conditioned for protection and community service, the dispatcher is conditioned toward the immediacy of those services being delivered (Stoughton, 2014). The delay of those services creates conflict for the call-taker or dispatcher. The actors, in this instance, are dispatchers and officers, who perform their roles within the expectations of the organization. The dominant-subordinate behavior is normal and thus comfortable.

The constant inattention or lack of recognition and praise can build barriers within the organization, producing an environment of exclusion. Dispatchers may perceive their role in the organization as valueless and undesirable (Sewell, 2006). The repetitive exclusion from the fraternity of sworn uniformed officers can build resentment and exacerbate the perception of institutional unfairness among civilian dispatch staff (Shernock, 1988). Recent research also suggests that organizational stressors, such as unfair work practices and workload, have an

impact on both physical and psychological stress outcomes of police officers and that the outcomes appear to be just as significant as those experienced by traumatic events (Huddleston, Stephens, & Paton, 2007; Sheehan & Van Hasselt, 2003; Stephens & Pugmire, 2008).

There are numerous traditions, practices, and routines within law enforcement that reinforce the positive aspect of camaraderie, but dispatchers and call-takers are regularly excluded from these practices. This exclusion emphasizes their rejection as valuable members of the institution. For instance, at the conclusion of a major or catastrophic incident, such as an officer-involved shooting, dispatchers are traditionally prevented from attending post-incident debriefings that are designed to allow affected personnel the immediacy of psychological service as well as a positive environment for reconstruction of the traumatic incident. Post-incident debriefings are considered commonplace for sworn personnel (Neely & Spitzer, 1997). The exclusion of call-takers and dispatchers in post-incident debriefings reinforces their belief in the unfairness of institutional practices especially because traumatic incidents involve the aid of the call-taker and/or dispatcher to such a degree that the call-taker or dispatcher is responsible for coordinating emergency personnel, facilitating the response of additional resources, following the unfolding event, and receiving and processing emergency radio traffic and citizen updates. This exclusion highlights a systemic belief in being a non-valued member of the team or organization. Additionally, unlike their sworn counterparts, dispatchers and call-takers are required to continue working and move on to the next call for service despite having just experienced a traumatic event. Dispatchers and call-takers may not be afforded the opportunity to stop working and process their feelings and thoughts.

The exclusion of dispatchers from post-incident debriefings and the denial of other provisional coping mechanisms provided to other personnel are counterintuitive because

dispatchers provide a lifeline of support to field personnel and theoretically suffer the same fight-or-flight physiological responses as field personnel (Williams, 1996). Although dispatchers have a significant emotional investment in the safety of all officers in their care (Meyer & Clements, 1998), their inability to participate in reconciliatory programs coupled with a lack of recognition may enhance the inherent stress of their work (Milender, 1988; Sheehan & Van Hasselt, 2003).

While the purpose of exclusion may or may not be one of fraternity, the end result is the same. Dispatchers and call-takers are not considered true members of the team (Shernock, 1988), and, as such, the services that the dispatcher provides further complicates the perception of institutional and individual fairness within the confines of the organization (Shuler & Sypher, 2000). McCarty and Skogan (2012) suggest that the structure of police organizations regularly places civilian occupations into lower levels than their sworn counterparts. As a result, supervisors tacitly endorse sworn personnel to view civilian employees unfavorably, thus denying their ability to become a member of the team or participate in a desirable activity or assignment (Chess, 1960).

### **Traumatic Stress: Physiological and Psychological Outcomes**

Field officers are the first to arrive at the scene of an emergency (Davis, 2005). Dispatchers and call-takers are generally not participants in the physical aspect of field operations except for dispatch-response teams, but every call for emergency and nonemergency responses begins with them. They are the first to answer the call, determine the facts, and have the discretion for sending help into harm's way (Imbens-Bailey & McCabe, 2000). Their autonomous decisions in determining when a caller will receive emergency services (Scott & Percy, 1983) propel their role into that of first responder, and, as participants in responses, they



are exposed to the auditory equivalent of what field officers experience visually and tactilely in the field (Troxell, 2008).

Longitudinal research studies indicate that there is a correlation between stress and the nature of police work. Primary indicators of stress cite the repetitive exposure to traumatic events during the execution of police duties (Gächter, Savage, & Torgler 2010; Miller, 1995). The way one responds to the stressors associated with the complex nature of police work may produce undesirable physiological and psychological outcomes, including headaches, high-blood pressure, heart disease, and traumatic stress disorder (Stinchcomb, 2004). Research suggests that after repeated exposure to traumatic events, police officers fall into one of two general categories: those who display the symptomatology of traumatic stress disorder(s) and those who are resilient to them (Galatzer-Levy, Madan, Neylan, Henn-Haase, & Marmar, 2011).

It is proposed that the same holds true for call-takers and dispatchers; those who display the symptomatology of traumatic stress and those who are resilient. Dispatchers and call-takers encounter a myriad of public encounters ranging from domestic violence, suicide, child abuse, sexual assault, assault, and the death of sworn officers. A third category, secondary traumatic stress disorder (STSD), is also an appropriate observation for what call-takers and dispatchers may experience, as STSD provides that those who are close to or emotionally connected either personally or professionally to primary trauma survivors also experience psychological distress (Figley, Beaton, & Murphy, 1995; Kintzle, Yarvis, & Bride, 2013; Kulkarni et al., 2013). STSD may present psychosomatic symptoms, including but not limited to depression, aggression, anxiety, and difficulties in social relationships (Akinsulure-Smith, Keatley, & Rasmussen, 2012; Weinberg, 2011). Secondary stress symptoms may mimic PTSD because of the frequency of

psychologically intrusive thoughts, avoidance, emotional numbing, and hyperarousal (Akinsulure-Smith et al., 2012; Whitfield & Kanter, 2014).

For field police officers, there are common criteria for both primary and secondary traumatic stress. For example, in the case of PTSD, there are four stages: the introduction of the stressor; re-experiencing the traumatic event; avoiding/numbing of reminders, and persistent arousal (Figley et al., 1995; Whitfield & Kanter, 2014). Another stressor may be a call or radio traffic that would fall outside the range of usual or normal human experience and would be markedly distressing to almost anyone. This would likely be categorized as a serious threat to the life, health, or security of the caller speaking with a call-taker or the officer on the air. Call-takers and dispatchers may manifest a reduced capacity for empathy toward the public and toward officers because of the repeated exposure to their trauma. This reduced empathy is categorized as compassion fatigue (Thieleman & Cacciatore, 2014). Moreover, the uniqueness of secondary traumatic stress is that it affects caregivers and those not directly exposed to the primary trauma. Given these conditions, secondary trauma may be referred to or inclusive of compassion fatigue (Kintzle et al., 2013; Thieleman & Cacciatore, 2014).

Like PTSD, compassion fatigue or STSD includes symptom clusters that exhibit via psychological and physiological outcomes (Kulkarni et al., 2013). They may appear as avoidance, intrusive memories or nightmares, and hypervigilance. A call-taker or dispatcher may also exhibit physiological reactivity after exposure to cues that remind them of an aspect of the traumatic event. This may lead to an avoidance of the stimuli, whether internal or external, that is associated with the trauma (Thieleman & Cacciatore, 2014). The avoidance may be a physical avoidance, a general emotional numbing as an effort to avoid the thoughts, feelings, or people associated with the traumatic event, or an inability to recall very important aspects of the

event itself, thus affecting memory as well (Akinsulure-Smith et al., 2012; Kintzle et al., 2013; Weinberg, 2011).

Typically during instances of emergency, a caller may be distraught, panicked, or display heated excitement while reporting a crime or occurrence. Call-takers are tasked with remaining calm while generating an emergency personnel response. Regardless of how frightening a call may be, they must sit calmly and process the emergency without any display of emotion to the caller (Davis, 2005; Jenkins, 1997). Call-takers are to remain almost mechanical in an effort to evoke a sense of calm and competency to the caller despite any involuntary physiological and psychological responses they may be experiencing (Troxell, 2008), such as flight or fight syndrome, which produces hormonal secretions, elevates blood pressure, and causes inconsistent breathing patterns; in other words, symptoms consistent with those experienced by field officers (Anderson, Litzenberger, & Plecas, 2002). While a single event in and of itself may be traumatic, the accumulation of events experienced by call-takers and dispatchers may lead them to re-experience the traumatic event(s) through recollections, dreams, reminders, or sudden re-experiencing of the event(s). The prolonged exposure and cumulative effects may lead to psychological efforts to avoid thoughts, feelings, activities, or similar situations, as well as the avoidance of activities that were once pleasurable (Thieleman & Cacciatore, 2014). Persistent arousal would lead to physiological symptoms such as insomnia, irritability, hypervigilance, outbursts of anger, and an exaggerated startle response (Figley et al., 1995; Pierce & Lilly, 2012; Troxell, 2008). These responses may manifest as economic losses to police agencies by excessive employee sick leave, citizen complaints, and poor work performance (Mann & Neece, 1990).

Although the physical integrity of call-takers is generally not directly threatened, they nonetheless may suffer physiological outcomes. In addition, they are exposed to numerous psychological stressors that differ by frequency and intensity (Doerner, 1987; Sewell & Crew, 1984), and, thus, they may display indications of secondary traumatic stress (Troxell, 2009). Williams (1996) also suggests that call-takers and dispatchers will absorb or manifest many of the same physical responses associated with fight or flight syndrome while processing calls for service. While the prolonged exposure to stress may increase risk of psychological and/or physiological outcomes, there are singular events of historical proportions that serve as powerful examples of the fight or flight syndrome and the stress borne by professional police dispatchers and call-takers (Baker, 2002; National Commission, 2004). These examples include the terrorist attacks in New York City on September 11, 2001, Hurricane Katrina in New Orleans, Hurricane Andrew in Florida, and the Los Angeles Riots of 1992. In the case of the New York City terrorist attacks of 2001, 27% of trauma workers reported being at extremely high risk for developing compassion fatigue, 11.7% at high risk, and 15.4% at moderate risk (Sprang et al., 2007).

Kirmeyer (1988) suggests that the relationship between stress and the personal health of dispatchers is worthy of investigation and that prolonged exposure to stress may render a person incapable of maintaining performance levels (Davis, 2005; Gächter et al., 2010; Pierce & Lily, 2012) and may lead to physiological problems, such as high blood pressure, ulcers, or stroke (Gächter et al., 2010). Pierce and Lilly (2012) found that police dispatchers and call-takers may exhibit symptomatology consistent with PTSD and that the exposure to incidents while on-duty may indeed lead to the actual development of PTSD. More importantly, the research suggested that direct physical exposure to trauma may not be necessary to increase the risk for PTSD for

police dispatchers and 9-1-1 call-takers and that secondary traumatic stress may manifest symptomatology similar to those who are directly exposed to traumatic conditions, such as police officers (Pierce & Lilly, 2012).

In addition, physiological and psychological outcomes have been negatively associated with work-life balance and satisfaction with life in that the more demands work places upon non-work or family activities, the more strain respondents reported (Kinnunen, Geurts, & Mauno, 2004). Frone's (2000) research indicated that employees who reported frequently experiencing work-family conflict were 2 to 30 times more likely to experience a clinically diagnosed mental health problem than their counterparts who reported no work-family conflict. Additional research (Frone et al., 1996) positively correlated work-life conflict with physiological outcomes specific to head, stomach, and backaches, as well as high-blood pressure.

### **Institutional Stressors**

Research has shown a correlation between an employee's perception of organizational fairness and work control as well as the balance between family and work. Generally, employees who perceive their jobs as demanding report less satisfaction with the balance of work and family, and their perception of organization fairness, even if reported as balanced, does not mitigate the negative correlation with work-life balance, suggesting that work-life balance is an important factor when considering general satisfaction (Heponiemi, Elovainio, Pekkarinen, Sinervo, & Kouvonen, 2008). Other organizational stressors, such as work climate, leadership styles, and support within the organization, have also been identified as contributing to job stress and burnout particularly for employees in rigid hierarchical structures. The hierarchical structure may contribute to an increase in unproductivity as well as counterproductive employee attitudes (Finney, Stergiopoulos, Hensel, Bonato, & Dewa, 2013). The stressors inherent with the job

may or may not be exacerbated by institutional stressors experienced by employees. The incongruence between family and the demands of work placed upon the call-taker or dispatcher creates role conflict. This arises when personal expectations or responsibilities and work obligations cannot be easily met at the same time (Umene-Nakano et al., 2014). This conflict exists for sworn officers, call-takers, and dispatchers alike when the demands inherent within the job, such as overtime, 24-hour shift work, mandatory holdovers, disasters, natural or otherwise, occur and the first responder is torn between professional and personal obligations (Jenkins, 1997). Employees' obligations to family, including child care, children's activities, and spousal demands or expectations, can increase tension and stress at home when the employee is unable to fulfill their personal commitments due to the demands of work (Jung Jang et al., 2012). The multiple roles one plays as call-taker, dispatcher, parent, child, caretaker, student, etc. creates conflict and, in turn, that conflict has been associated with negative psychological outcomes. In addition, those who demonstrate coping skills are more likely to report a higher satisfaction with life and less physiological or psychological outcomes (Perrone & Civiletto, 2004). Conversely, it stands to reason that an employee who achieves a balance in this inherent conflict would report less stress, which is a logic that is consistent with Marks (1977) who theorized that individuals with a psychological commitment to their social roles would experience role strain.

The literature also suggests that gender may influence the degree of stress an employee feels as related to work demands and obligations outside of the home (Jung Jang et al., 2012; Pines et al., 1981). Female employees account for a large proportion of civilian positions in law enforcement (McCarty & Skogan, 2012). As with their sworn male counterparts, female call-takers and dispatchers also perceive the obligations of work, such as irregular days off, poor training, 24-hour on-call status, inadequate supervision, and low pay, as institutional stressors

that may influence their perception of stress (Hart, Wearing, & Headey, 1995; Sheehan & Van Hasselt, 2003).

However, additional conflict occurs within police organizations, as Chia-huei (2009) explains, because police officers maintain a specific social position in the community by which their profession has a particular set of expectations, such as law and order. Within the broad context of law enforcement, dispatchers and call-takers maintain a critical and specific role within these organizations although their roles are often misunderstood by administrators, the public, and police officers alike (Burke, 1995). The demands of the call-takers' and dispatchers' roles create institutional conflict because the demands from the public for immediacy of service is often in direct opposition to the demands from officers to meet tactical objectives. The delay in service creates conflict for the call-taker or dispatcher. Employees who do not feel valued for the role they play in the organization and their perceptions of workplace inequities, such as favoritism, poor pay, or gender bias, have an adverse effect on stress. These factors, when present, may produce an employee who displays apathy, disenchantment, and negativity toward their role in the organization (Adebayo, Sunmola, & Udegbe, 2008). All of these conditions may be compounded because, as employees of law enforcement organizations, call-takers and dispatchers must adhere to additional sets of constraints unique to their employment. For example, both civilian and sworn employees must take oaths of office, seek approval for additional employment outside of their primary employing agency, report any contact with law enforcement agencies outside the scope of their normal work duties, be subject to random drug and alcohol testing, and be on call to report back to work at any given time. Additionally, they may not associate with persons that use recreational drugs, and they must maintain financial responsibility or risk of losing employment (San José Police Department, 2006).

Consistent with the literature, employees who report managing the demands of work and their private lives proportionately report fewer stress outcomes (Hall, Dollard, Tuckey, Winefield, & Thompson, 2010). Thus, work-life balance appears to have a significant correlation with reported stress levels in that time away from home may create stress at work (Hall et al., 2010). Research has shown that police officers have more difficulty performing their duties, increased absenteeism, and higher attrition rates when they are unable to maintain a positive and productive work-life balance (Hall et al., 2010). Methods implemented to reduce the work-life conflict, such as alternate scheduling, employee meal flexibility, and quality time spent away from work, may in fact reduce the stress an employee experiences at work (Jung Jang et al., 2012).

The same would hold true for 9-1-1 call-takers or dispatchers as the stressful nature of their work environment may influence the inability to properly balance home and work. The extra overtime hours, shift work, and unpredictability of emergencies reduce the amount of discretionary time available for leisure or social activities with friends and family. This may negatively affect work-related health and the well-being of the employee (Brough & O'Driscoll, 2010). Such situations may create higher levels of stress and decrease job satisfaction, which, in turn, raises stress levels (Anderson et al., 2002; Gächter et al., 2010). Contextually, spending less time at work and balancing the interactions with social or familial activities would result in lower levels of self-reported stress (Gächter et al., 2010).

Some of the common efforts employers put in place to combat the inequities of work-life balance are creating family-friendly work environments with on-site child care, paid parental leave, or telecommuting, but they are not conducive to 24-hour emergency service operations. Call-takers and dispatchers, as employees in the State of California, are afforded protected



parental leave of up to 40 hours per annum for qualifying school events for their dependent children (Cal. Gov. Code § 12945.2, 2004).

Importantly, recent literature suggests that social support safeguards individuals against both chronic and acute forms of stress (Gächter et al., 2010) and indicates that when sworn officers employ social support systems, such as licensed psychological clinicians or a close family member to talk about their traumatic experiences, they can find emotional relief (Evans, Pistrang, & Billings, 2013). Given the frequency and similarity of traumatic exposure(s) by call-takers and dispatchers, they may find similar stress relief by utilizing their social support network.

T. Burke (1991) suggests that dispatchers who perceive a lack of control over their work environment are more likely to experience greater job stress. The perception of a lack of control over potentially traumatic events may render dispatchers more impersonal in their attitude toward the public and the officers they serve. Moreover, it may be correlated to the symptomatology consistent with stress (P. Burke, 1991; Pierce & Lilly, 2012). Those in the business of providing care, in this case, emergency services workers, associate personal suffering, or trauma as the cost of providing care to others. The suffering often takes the form of compassion fatigue, burnout, and PTSD. The effects of these conditions place them at a higher risk of making poor professional judgments and choices, which, in the case of 9-1-1 call-takers and dispatchers, may put the public or police officers in peril (Collins & Long, 2003).

The most obvious difference in working conditions between police officers and dispatchers is that officers have the ability to physically process their stress (Beaton & Murphy, 1995; Garrett, 2001). Police officers can get out of their patrol cars and walk around or fight if required to subdue a suspect, but police dispatchers and call-takers are literally physically

attached to and constrained by their workstation, radio console, or computer terminal with their headset equipment, and, thus, their range of mobility is extremely limited while they go from one call to the next without break (Garrett, 2001; Johnston, 2007; Ksionzky & Mehrabian, 1986). The inability to stop working coupled with the unpredictability of spontaneously traumatic events may lead to peritraumatic stress and disassociation, which, by definition, is explained as the immediate reaction to overwhelmingly stressful events. The reactions are usually expressed as memory disturbances, detachment from peers and surroundings, depersonalization, and an alteration in the perception of events (Pacella et al., 2011).

Stinchcomb (2004) suggests that the work of those in the helping professions, or the professional caretaker, inherently manifest characteristics of stress, and those occupations in which others' lives are dependent are more vulnerable to exhibiting symptoms of chronic stress disorder. The stress 9-1-1 call-takers and dispatchers experience arguably exceeds that of more ordinary employment, and is on par with the stress and stressors experienced firsthand by police officers as a group (Troxell, 2008). The dispatchers' physiological reactions to chronic stress may include headaches, stomach issues, and backaches or manifest into more serious physical conditions, such as high-blood pressure, ulcers, heart attack, or stroke (Anderson et al., 2002; Gershon, Barocas, Canton, Li, & Vlahov, 2009).

Many dispatch facilities in the U.S. are located in the windowless basements of public buildings or police departments. In many metropolitan cities, the dispatch facilities are several floors underground because they double as bomb shelters (Danielson, 2006). Indeed, it is very rare for a dispatch facility to have windows, skylights, or any source of natural sunlight, as well as sources for fresh air (Danielson, 2006; Moynihan, 1996). Furthermore, with tight confines

and shared equipment, sickness in dispatch centers can spread in a matter of a few days or, in certain instances, a few hours (Mestel, 2004; Moynihan, 1996).

During the winter months, it is quite possible that employees may not see the literal light of day because of their work shift hours and lengthy deployments for 3-6 months. The lack of natural sunlight exposure for dispatchers and call-takers can lead to vitamin D deficiency (Farrar et al., 2011). Vitamin D is a critical component in the body's ability to ward off stress or illness (Kiefer, 2010), and prolonged vitamin D deficiency can lead to various chronic diseases and even death (Kilkinen et al., 2009).

Given the literature, the following hypotheses controlling for sex, age, years on the job, and education level will be explored: (1) call-takers/dispatchers with greater work-life balance, higher perceptions of fairness at work, greater support at home, higher institutional fairness, and greater work control will self-report lower stress levels, (2) call-takers/dispatchers who report more stress will report more negative physiological outcomes, (3) call-takers/dispatchers who report more stress will report more negative psychological outcomes, and, finally, (4) call-takers/dispatchers who report less stress, greater work-life balance, higher perceptions of fairness at work, institutional fairness, greater support at home, and greater work control will report higher satisfaction with life.

### Chapter III: Research Methods

#### **Participants and Procedures**

The convenience sample for this study was comprised of 90 civilian 9-1-1 call-takers and police dispatchers employed full-time in the San José Police Department Communications Division. The total number of respondents completing the survey was 89, capturing 98.8% of the total sample. The sample was predominantly female ( $n = 67$  or 78.8%), with males

accounting for 21.2% ( $n = 18$ ). The mean age of the sample was 40.7 years ( $n = 85$ ). The participants reported an average of 11.22 years of service ( $n = 85$ ), and in terms of the highest level of education, 5.95% only completed high school, 39.29% reported some college, 21.43% possessed a two-year degree, 29.76% earned a bachelor's degree, 1.19% completed some graduate work, and 2.38% earned a master's degree ( $n = 84$ ).

The City of San José has a population of nearly 1 million people (U.S. Census Bureau, 2012). San José is the 10th largest metropolitan city in the U.S. (U.S. Census Bureau, 2010) and the third largest city in the state of California (U.S. Census Bureau, 2012). The San José Police Department is the 35th largest police department in the nation (Reaves, 2011), and, as such, the San José Police Department Communications Division processes over 1 million 9-1-1 calls per year (San José Police Department, 2012).

The survey instrument was reviewed and approved by the San José State University Institutional Review Board (IRB) on June 13, 2012. The survey was distributed through the internal email client available to all employees holding the rank of Public Safety Communications Specialist (police call-taker) and Public Safety Radio Dispatcher (police dispatcher). Informed consent was presented (Appendix A) as a preamble to the survey, indicating that participation in the survey was voluntary, that the participant's identity would remain anonymous, and that no inducement was offered or implied for participation. Survey Monkey software was used to collect and house the survey responses. The survey took about 15 minutes to complete and was available for access during a 7-day workweek from August 17 to 24, 2012.

## Dependent Variables

**Perceived stress.** The perceived stress scale was a condensed questionnaire similar to Cohen, Kamarck, & Mermelstein (1983). Each item used a five-point scale: 1 = Never, 2 = Almost Never, 3 = Sometimes, 4 = Fairly Often, and 5 = Very Often. Responses were summed and divided by 6 to create the perceived stress variable. The Cronbach's alpha was .828, indicating that the scale had inter-item reliability. The questions related to the respondents' self-conceptualization of perceived stress are displayed beginning with Table 1.

Table 1

### *Questions for the Perceived Stress Variable*

---

In the last month, how often have you:	
Q1	Been upset because of something that happened unexpectedly.
Q2	Felt that you were unable to control the important things in your life.
Q3	Felt nervous and "stressed."
Q4	Found that you could not cope with all the things you had to do.
Q5	Been angered because of things that were outside of your control.
Q6	Felt difficulties were piling up so high that you could not overcome them.

---

**Physiological outcomes.** The physiological outcomes variable was composed of six questions. Each item used a 5-point scale: 1 = Never, 2 = Almost Never, 3 = Sometimes, 4 = Fairly Often, and 5 = Very Often. Responses were summed and divided by 6 to create the physiological outcomes score. The Cronbach's alpha was .698, indicating acceptable inter-item reliability. The questions related to the respondents' self-reporting of the frequency of occurrence of physical ailments are displayed beginning with Table 2.

Table 2

*Questions for the Physiological Outcomes Variable*

In the last month, how often have you had:	
Q1	Migraines.
Q2	Lower back pain.
Q3	High blood pressure.
Q4	Pain in your chest.
Q5	Insomnia or trouble sleeping.
Q6	Difficulty remembering common names or places.

**Psychological outcomes.** The psychological outcomes scale was composed of 10 questions. Items were summed and divided by 10 to create the psychological outcomes variable. Each item used a five-point scale: 1 = Very Slightly or Not at All, 2 = A Little, 3 = Moderately, 4 = Quite a Bit, and 5 = Extremely. Reverse coding was required for five questions: upset, hostile, ashamed, nervous, and afraid. The Cronbach’s alpha was .503. The psychological outcomes scale (Maslach & Jackson, 1981) consists of 10 items and are presented in Table 3.

Table 3

*Questions for the Psychological Outcomes Variable*

In the past month, how often have you felt:	
Q1	Upset
Q2	Hostile
Q3	Alert
Q4	Ashamed
Q5	Inspired
Q6	Nervous
Q7	Determined
Q8	Attentive
Q9	Afraid
Q10	Active

**Satisfaction with life.** The satisfaction with life scale (Diener, Emmons, Larsen, & Griffin, 1985) was used. Each item was measured with a seven-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .901, indicating a high inter-item reliability. All of the questions were positive, and all items were summed and divided by 5 to create the satisfaction with life variable. The questions are presented in Table 4.

Table 4

*Questions for the Satisfaction with Life Variable*

---

Indicate the extent you have felt this way in the past month:

---

Q1	In most ways, my life is close to ideal.
Q2	The conditions of my life are excellent.
Q3	I am satisfied with my life.
Q4	So far, I have gotten the important things I want in life.
Q5	If I could live my life over, I would change almost nothing.

---

**Independent Variables**

**Work control.** The first independent variable is work control. Work control was composed of five questions and is presented in Table 5 (Beehr, Walsh, & Taber, 1976). The questions addressed respondents' feelings of control over work tasks. Each item was measured via a seven-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .878, indicating a high inter-item reliability.

Table 5

*Questions for the Work Control Variable*

---

Indicate to what extent you feel this way:

---

Q1	At work, I decide on the order in which I do things
Q2	I decide when to start or finish a piece of work
Q3	I set my own pace at work
Q4	At work, I control how much I accomplish.
Q5	I decide how to go about getting my job done.

---

**Work-life balance.** The second independent variable is work-life balance. Each item was measured via a seven-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .795, indicating high inter-item reliability. The questions were summed and divided by 2 to create the work-life balance variable. The questions are displayed in Table 6.

Table 6

*Questions for the Work-Life Balance Variable*

---

Indicate to what extent you have felt this way:

---

Q1	I am able to find a good balance between the demands of work and the demands on me at home.
Q2	I have enough time to do the things I enjoy most in life outside of work.

---

**Work unfairness.** The third independent variable is perceived work unfairness. Each item was measured via a seven-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly



Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .784, indicating a high inter-item reliability. The questions were summed and divided by 2 to create the perceived work unfairness variable. The questions are presented in Table 7.

Table 7

*Questions for the Work Unfairness Variable*

---

To what extent have you felt this way:

---

- Q1 At work, I am more likely to be criticized for mistakes than others at my rank.
- Q2 At work, I am chosen less for certain assignments because of things about me like my race, gender, religion, and so forth.
- 

**Institutional fairness.** The fourth independent variable is institutional fairness. Each item was measured via a seven-point scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .675, indicating inter-item reliability. The variable was comprised of two items and is presented in Table 8.

Table 8

*Questions for the Institutional Fairness Variable*

---

Indicate to what extent you have felt this way:

---

- Q1 Promotions in my department are the result of ability and merit.
- Q2 All call-takers are treated in the same way regardless of personal differences.
-

**Support at home.** The fifth independent variable is support at home. Each item was measured via a seven-point Likert scale: 1 = Strongly Disagree, 2 = Disagree, 3 = Slightly Disagree, 4 = Neither Agree nor Disagree, 5 = Slightly Agree, 6 = Agree, and 7 = Strongly Agree. The Cronbach's alpha is .555, indicating low inter-item reliability. The variable was comprised of two items and is presented in Table 9.

Table 9

*Questions for the Support at Home Variable*

---

Indicate to what extent you feel this way:

---

Q1 I feel that I can rely on support from my family and friends.

Q2 I often talk with my spouse, relatives, or friends about problems.

---

**Control Variables**

There were four control variables used in the multiple regression models. The variables of educational level, gender, years on the job, and age are presented in Tables 10-13 respectively.

Table 10

*Control Variables in the Hierarchical Regression Models*

---

Q1: What is the highest level of education you have completed?

---

	Response Percent	Response Count
High School	6.0%	5
Some College	39.3%	33
A.A./ A.S. degree	21.4%	18
B.A./B.S. degree	29.8%	25
Some graduate work	1.2%	1
Completed master's degree	2.4%	2

---

*Note.* N = 84.

Table 11

Q2: What is your age		
	Response Percent	Response Count
18-24	1.1%	1
25-34	22.3%	19
35-44	45.8%	39
45-54	34.7%	21
55+	5.8%	5

*Note: N=85*

Table 12

Q2: What is your gender		
	Response Percent	Response Count
Female	78.8%	67
Male	21.2%	18

*Note: N=85*

Table 13

Q2: How many total years have you worked as a call-taker or dispatcher?		
	Response Percent	Response Count
1-9	43.6%	31
10-19	41.1%	35
20-29	9.4%	13
30+	5.8%	6

*Note: N=85*

*Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

Regression analysis was conducted for each of the four hypotheses. Each hypothesis was tested separately using hierarchical multiple linear regression analysis with SPSS software. Hierarchical multiple linear regression provided an account of the amount of variance explained by the selected independent variables.

#### Chapter IV: Results

To examine the unique contribution of the independent variables in the explanation of perceived stress, a hierarchical multiple regression analysis was performed. The first hypothesis states that call-takers/dispatchers with greater work-life balance; higher perceptions of fairness at work, greater support at home, higher institutional fairness, and greater work controls will self-report lower stress. The questions and responses for the perceived stress variable resulted in a mean of 2.9, indicating that most respondents reported experiencing stress “sometimes.” The results are reported in Table 14.

Table 14

#### *Questions and Responses for the Perceived Stress Variable*

In the last month how often have you:	Never	Almost Never	Sometimes	Fairly Often	Very Often
Been upset because of something that happened unexpectedly	1.1%(1)	15.7%(14)	55.1%(49)	24.7%(22)	3.4%(3)
Felt that you were unable to control the important things in your life	3.4%(3)	21.3(19)	42.7%(38)	25.8%(23)	6.7%(6)
Felt nervous and “Stressed”	0.0%(0)	3.4%(3)	30.3%(27)	48.3%(43)	18.0%(16)
Found that you could not cope with all the things that you had to do	7.9%(7)	24.7%(22)	48.3%(43)	15.7%(14)	3.4%(3)
Been angered because of things that were outside of your control	2.3%(2)	21.6%(19)	46.6%(41)	28.4%(25)	1.1%(1)
Felt difficulties were piling up so high that you could not overcome them	12.5%(11)	26.1%(23)	45.5%(40)	12.5%(11)	3.4%(3)

*Note.*  $M = 2.9$ .  $N = 89$  Law Enforcement Call-Taker and Dispatcher Survey, 2012.

In model 1, perceived stress was the dependent variable, and age, sex, years on the job, and educational level were control variables. To test for simultaneous effects of each of the independent variables, model 2 includes the independent variables of work-life balance, perceived work unfairness, support at home, work control, and institutional fairness, along with the four control variables. The unstandardized regression coefficients (*b*) and the standardized regression coefficients ( $\beta$ ) are reported in Table 15.

Table 15

*Results of Hierarchical Regression of Perceived Stress on Independent and Control Variables Ordered by Unstandardized Coefficients (b), Standard Errors (SE), and Standardized Coefficients ( $\beta$ )*

Model 1				
Control Variables	<i>b</i>	SE	$\beta$	<i>p</i>
Age	-.010	.053	-.029	.848
Sex	-.834	.909	-.109	.362
Years on Job	.053	.061	.128	.386
Education Level	-.035	.325	-.01208	.915
<i>R</i> <sup>2</sup>	.025			
Adjusted <i>R</i> <sup>2</sup>	.026			

  

Model 2				
All Variables	<i>b</i>	SE	$\beta$	<i>p</i>
Age	-.009	.045	-.026	.842
Sex	-.639	.790	-.083	.422
Years on Job	.061	.051	.148	.239
Education Level	-.012	.280	-.004	.966
Work-Life Balance	-.573*	.144	-.429	.000
Perceived Work Unfairness	.249	.135	.190	.069
Support at Home	-.148	.161	-.099	.361
Work Control	-.044	.054	-.084	.421
Institutional Fairness	-.095	.141	-.071	.504
<i>R</i> <sup>2</sup>	.370			
Adjusted <i>R</i> <sup>2</sup>	.291			

\* *p* < .001, two-tailed. *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The results of model 1 indicated that the explained variance,  $R^2$ , with the four control variables equaled .025. In model 2, the independent variables of work-life balance, perceived work unfairness, support at home, work control, and institutional fairness were added to the regression equation. The change in variance between models 1 ( $\Delta R^2$ ) was equal to .354, with 37.0% of the variation of perceived stress explained by all of the independent variables and the control variables.

When examining the parameter estimates of the overall model, as predicted by the hypothesis, the slope between work-life balance and perceived stress is negative and statistically significant ( $b = -.573, p < .001$ ). The other independent variables; work unfairness, support at home, institutional fairness, and work control were not significant predictions of stress. Therefore, when controlling for the other variables the first hypothesis is only partially supported.

The second hypothesis states that call-takers/dispatchers who report more stress will report more negative physiological outcomes. The questions related to the respondents' self-reporting of the frequency of occurrence of physical ailments with a mean of 2.7, which indicates that respondents "sometimes" feel physiological outcomes. The specific questions relating to insomnia or trouble sleeping, back pain, and difficulty remembering common names or places indicate a larger clustering of physiological outcomes. For insomnia or trouble sleeping, the average rating was 2.6, with 80% of respondents choosing sometimes, fairly often, or very often. For back pain, 73.5% selected sometimes, fairly often, or very often. Finally, for difficulty remembering names, 41.8% rated sometimes, with a total of 23% rating between fairly often and very often. The responses for the physiological outcomes variable are reported in Table 16.

Table 16

*Questions and Responses for the Physiological Outcomes Variable*

In the last month, how often have you had:					
	Never	Almost Never	Sometimes	Fairly Often	Very Often
Migraines	43.71%(38)	14.9%(13)	24.1%(21)	11.5%(10)	5.7%(5)
Lower back pain	13.8%(12)	12.6%(11)	27.6%(24)	21.8%(19)	24.1%(21)
High blood pressure	38.4%(33)	17.4%(15)	23.3%(20)	11.6%(10)	9.3%(8)
Pain in your chest	40.2%(35)	29.9%(26)	16.1%(14)	11.5%(10)	2.3%(2)
Insomnia or trouble sleeping	4.7%(4)	15.1%(13)	25.6%(22)	24.4%(21)	30.2%(26)
Difficulty remembering common names/places	15.1%(13)	19.8%(17)	41.9%(36)	16.3%(14)	7.0%(6)

*Note.*  $M = 2.7$ .  $N = 87$  Law Enforcement Call-Taker and Dispatcher Survey, 2012.

To examine the unique contribution of perceived stress in the explanation of negative physiological outcomes, a hierarchical multiple regression analysis was performed. In model 1, physiological outcomes is the dependent variable, and age, sex, years on the job, and educational level were the control variables. The results of model 1 indicated that the explained variance,  $R^2$ , with the four control variables equaled .034. In model 2, the perceived stress outcomes variable was added into the regression equation. The change in variance between models ( $\Delta R^2$ ) was equal to .100, with 13.4% of the variation of physiological outcomes explained by perceived stress and the control variables. This, along with the unstandardized regression coefficients ( $b$ ) and standardized regression coefficients ( $\beta$ ), is reported in Table 17.

Table 17

*Results of Hierarchical Regression of Physiological Outcomes on Independent and Control Variables Ordered by Unstandardized Coefficients (b), Standard Errors (SE), and Standardized Coefficients ( $\beta$ )*

Model 1				
Control Variables	<i>b</i>	SE	$\beta$	<i>p</i>
Age	.043	.074	.086	.562
Sex	-1.324	1.201	-.131	.274
Years on Job	-.097	.082	-.170	.239
Education Level	.068	.441	.018	.879
<i>R</i> <sup>2</sup>	.034			
Adjusted <i>R</i> <sup>2</sup>	.018			

  

Model 2				
Independent Variables	<i>b</i>	SE	$\beta$	<i>p</i>
Age	.042	.070	.084	.553
Sex	-.914	1.153	-.090	.430
Years on Job	-.116	.078	-.203	.142
Education Level	.065	.421	.017	.878
Perceived Stress	.441*	.150	.321	.004
<i>R</i> <sup>2</sup>	.134			
Adjusted <i>R</i> <sup>2</sup>	.076			

Note. \*  $p < .01$ , two-tailed. *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

When examining the parameter estimates of the overall model, the slope between perceived stress and physiological outcomes is positive and statistically significant ( $b = .441, p < .01$ ). For every unit increase in perceived stress, physiological outcomes increases .441, controlling for age, sex, years on the job, and education. Thus, those reporting higher stress levels are more likely to suffer physiological problems. Therefore, the second hypothesis is supported.

The third hypothesis states call-takers/dispatchers who report more stress will report more negative psychological outcomes. To examine the unique contribution of perceived stress



in the explanation of psychological outcomes, a hierarchical multiple regression analysis was performed. The mean of 3.3, indicates that respondents, for the most part, reported moderate psychological outcomes. The responses for the psychological outcomes variable are reported in Table 18.

Table 18

*Questions and Responses for the Psychological Outcomes Variable*

Indicate in the past month, how often you have felt this way:					
	Very Slightly or Not at All	A Little	Moderately	Quite a Bit	Extremely
Upset	4.6%(4)	28.7%(25)	28.7%(25)	35.3%(31)	2.3%(2)
Hostile	40.7%(35)	34.9%(30)	17.4%(15)	7.0%(6)	0.0%(0)
Alert	1.2%(1)	15.1%(13)	33.7%(29)	43.0%(37)	7.0%(6)
Ashamed	59.8%(52)	25.3%(22)	12.6%(11)	1.1%(1)	1.1%(1)
Inspired	26.4%(23)	35.6%(31)	23.0%(20)	12.6%(11)	2.3%(2)
Nervous	13.8%(12)	36.8%(32)	31.0%(27)	12.6%(11)	5.7%(5)
Determined	2.3%(2)	22.1%(19)	38.4%(33)	25.6%(22)	11.6%(10)
Attentive	2.3%(2)	13.8%(12)	47.1%(41)	31.0%(27)	5.7%(5)
Afraid	36.8%(32)	37.9%(33)	13.8%(12)	9.2%(8)	25.3%(2)
Active	9.2%(8)	20.7%(18)	41.4%(36)	20.7%(18)	8.0%(7)

*Note.*  $M = 3.3$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

To examine the unique contribution of perceived stress in the explanation of psychological outcomes, a hierarchical multiple regression analysis was performed. In model 1, psychological outcomes is the dependent variable, and age, sex, years on the job, and educational level were control variables. In model 2, the perceived stress variable was added. The results of model 1 indicated that the explained variance,  $R^2$ , with the four control variables equaled .065,  $p$

= .270. In model 2, the perceived stress variable was added into the regression equation. The change in variance between models ( $\Delta R^2$ ) was equal to .104,  $p = .003$ , with 16.9% of the variation of psychological outcomes explained by perceived stress and the control variables. This, along with the unstandardized regression coefficients ( $b$ ) and standardized regression coefficients ( $\beta$ ), is reported in Table 19.

Table 19

*Results of Hierarchical Regression of Psychological Outcomes on Independent and Control Variables Ordered by Unstandardized Coefficients ( $b$ ), Standard Errors (SE), and Standardized Coefficients ( $\beta$ )*

Control Variables	Model 1			
	$b$	SE	$\beta$	$p$
Age	.065	.066	.145	.324
Sex	-1.650	1.103	-.173	.139
Years on Job	-.128	.075	-.243	.089
Education Level	.291	.401	.082	.466
$R^2$	.065			
Adjusted $R^2$	.016			

Independent Variables	Model 2			
	$b$	SE	$\beta$	$p$
Age	.066	.062	.148	.290
Sex	-1.290	1.054	-.135	.225
Years on Job	-.143*	.071	-.270	.048
Education Level	.310	.381	.086	.419
Perceived Stress	.413**	.135	.325	.003
$R^2$	.169			
Adjusted $R^2$	.113			

Note. \*  $p < .05$ , two-tailed. \*\*  $p < .01$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The overall model, as predicted by the hypothesis, expresses a positive and statistically significant ( $b = .413, p < .01$ ) relationship between perceived stress and psychological outcomes.

For every unit increase in perceived stress, psychological outcomes increases .413, controlling for age, sex, years on the job, and education. Indicating, those reporting higher stress levels are more likely to suffer psychological outcomes. Thus, the third hypothesis is supported.

The fourth hypothesis states that call-takers/dispatchers who report less stress, greater work-life balance, higher perceptions of fairness at work, greater support at home, greater work control, and institutional fairness will report higher satisfaction with life. The mean of 4.7, indicates that respondents, on the whole, were generally “slightly” satisfied with life. The responses for the satisfaction with life variable are reported in Table 20.

Table 20

*Questions and Responses for the Satisfaction with Life Variable*

Indicate the extent you have felt this way the past month							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
In most ways my life is close to ideal	5.8% (5)	26.4%(23)	19.6%(17)	9.2%(8)	12.6%(11)	23.0%(20)	3.5%(3)
The conditions of my life are excellent	4.7%(4)	25.6%(22)	18.6%(16)	14.0%(12)	18.6%(16)	14.0%(12)	4.7%(4)
I am satisfied with my life	3.5%(3)	16.3%(14)	17.4%(15)	4.7%(4)	22.1%(19)	31.4%(27)	4.7%(4)
So far, I have gotten the important things I want in life	2.4%(2)	11.8%(10)	17.6%(15)	9.4%(8)	16.5%(14)	32.9%(28)	9.4%(8)
If I could live my life over, I would change almost nothing	16.1%(14)	17.2%(15)	27.6%(24)	11.5%(10)	9.2%(8)	13.8%(12)	4.6%(4)

*Note.*  $M = 4.7$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The first independent variable is work control. The mean was 3.6, indicating little work control. The variable was comprised of five items and is presented in Table 21.

Table 21

*Questions and Responses for the Work Control Variable*

Indicate the extent you have felt this way							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
At work, I decide on the order in which I do things.	10.3% (9)	17.2% (15)	16.1%(14)	18.4%(16)	10.3%(9)	25.3%(22)	2.3%(2)
I decide when to start or finish a piece of work.	17.2%(15)	19.5%(17)	16.1%(14)	23.0%(20)	10.3%(9)	13.8%(12)	0.0%(0)
I set my own pace at work.	28.7%(25)	23.0%(20)	14.9%(13)	12.6%(11)	9.2%(8)	11.5%(10)	0.0%(0)
At work, I control how much I accomplish	10.3%(9)	24.1%(21)	16.1%(14)	21.8%(19)	8.0%(7)	19.5%(17)	0.0%(0)
I decide how to go about getting my job	3.4%(3)	14.9%(13)	16.1%(14)	16.1%(14)	17.2%(15)	28.7%(25)	3.4%(3)

*Note.*  $M = 3.6$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The second independent variable is work-life balance. The questions were summed and divided by 2 to create the work-life balance variable with a mean of 3.7, indicating the respondents neither agreed nor disagreed. The variable was comprised of two items and is presented in Table 22.

Table 22

*Questions and Responses for the Work-Life Balance Variable*

Indicate to what extent you have felt this way:							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
I am able to find a good balance between the demands of work and the demands on me at home	4.6%(4)	11.5%(10)	27.6%(24)	9.2%(8)	21.8%(19)	23.0%(20)	2.3%(2)
I have enough time to do the things I enjoy most in life outside of work	12.6%	28.7%(25)	25.3%(22)	1.1%(1)	10.3%(9)	17.2%(15)	4.6%(4)

*Note.*  $M = 3.7$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012*

The third independent variable is perceived work unfairness, with a mean of 2.3, indicating that most respondents disagreed about work unfairness is presented in Table 23.

Table 23

*Questions and Responses for the Work-Unfairness Variable*

To what extent have you felt this way:							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
At work, I am more likely to be criticized for mistakes than others at my rank.	24.1% (21)	25.35%(22)	10.3%(9)	20.7%(18)	11.5%(10)	3.4%(3)	4.6%(4)
At work, I am chosen less for certain assignments because of things about me like my race, gender, religion, and so forth.	54.0%(47)	25.3%(22)	2.3%(2)	8.0%(7)	4.6%(4)	2.3%(2)	1.1%(1)

*Note.*  $M = 2.3$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The fourth independent variable is institutional fairness with a mean of 3.2, indicating slight disagreement about institutional fairness as related to equality and promotions in Table 24.

Table 24

*Questions and Responses for the Institutional Fairness Variable*

Indicate to what extent you have felt this way:							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
Promotions in my department are the result of ability and merit.	12.8%(11)	10.5%(11)	18.6%(16)	15.1%(13)	17.2%(15)	23.3%(20)	2.3%(2)
All call-takers are treated in the same way regardless of personal differences	23.06%(20)	37.9%(33)	19.5%(17)	6.9%(6)	4.6%(4)	6.9%(6)	1.1%(1)

Note.  $M = 3.2$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The fifth independent variable is support at home and is presented in Table 25.

Table 25

*Questions and Responses for the Support at Home Variable*

Indicate the extent you have felt this way the past month							
	Strongly Disagree	Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Agree	Strongly Agree
I feel that I can rely on support from my family and friends	0.0% (0)	8.0%(7)	6.9%(6)	4.6%(4)	17.2%(15)	29.9%(26)	33.3%(29)
I often talk with my spouse, relatives, or friends about problems.	7.0%(6)	4.7%(4)	15.1%(13)	8.1%(7)	17.4%(15)	25.6%(22)	22.1%(19)

Note.  $M = 5.2$ .  $N = 87$ . *Law Enforcement Call-Taker and Dispatcher Survey, 2012.*

The mean of 5.2, indicates that the majority of the respondents rely upon support at home. For the first question, 80% selected slightly agree, agree, or strongly agree, and for the second question, about 65% selected slightly agree, agree, or strongly agree.

To examine the unique contribution of the independent variables in the explanation of satisfaction with life, a hierarchical multiple regression analysis was performed. The responses for the satisfaction with life variable are reported in Table 26.

Table 26

*Results of Hierarchical Regression of Satisfaction with Life on Independent and Control Variables Ordered by Unstandardized Coefficients (b), Standard Errors (SE), and Standardized Coefficients (β)*

	Model 1				
	Control Variables	<i>b</i>	SE	$\beta$	<i>p</i>
In model 1, satisfaction with life was the	Age	-.148	.107	-.210	.171
dependent variable, and age, sex, years on the job,	Sex	-1.166	1.831	-.077	.526
and educational level were control variables. In	Years on Job	.178	.126	.205	.162
model 2, the independent variables of perceived	Education Level	.340	.690	.057	.624
stress, work-life balance, work unfairness, support	$R^2$	.050			
at home, work control, and institutional fairness	Adjusted $R^2$	.003			

were added. The results of model 1 indicated that the explained variance,  $R^2$ , with the four control variables equaled .003. In model 2, the independent variables of perceived stress, work-life balance, work unfairness, support at home, work control, and institutional fairness were added. The change in variance between models ( $\Delta R^2$ ) was equal to .454, with 50.4% of the variation of satisfaction with life explained by the independent variables and the control variables.

When examining the parameter estimates of model 2, controlling for the other variables the following relationships were found to be statistically significant; perceived stress and satisfaction with life is negative ( $b = -.546, p < .01$ ), work-life balance and satisfaction with life is positive ( $b = .683, p < .05$ ), work unfairness and satisfaction with life is negative ( $b = -.747, p < .01$ ). Therefore, with every unit increase in stress satisfaction with life decreases  $-.546$ , for every increase in satisfaction with life, work-life balance increases  $.683$ , and for every unit increase in work unfairness, satisfaction with life declines by  $.747$ .

All Variables	Model 2			
	<i>b</i>	SE	$\beta$	<i>p</i>
Age	-.157	.082	-.222	.062
Sex	-1.521	1.462	-.101	.302
Years on Job	.140	.098	.162	.158
Education Level	.341	.533	.057	.525
Perceived Stress	-.546**	.221	-.271	.016
Work-Life Balance	.683*	.295	.258	.024
Perceived Work Unfairness	-.747**	.264	-.283	.006
Support At Home	.372	.296	.129	.214
Work Control	.132	.100	.126	.190
Institutional Fairness	-.103	.276	-.038	.710
$R^2$	.504			
Adjusted $R^2$	.429			

Note. \*  $p < .05$ , \*\*  $p < .01$ , two-tailed

However, the regression between satisfaction with life, support at home, work control, and institutional fairness are not significant. The fourth hypothesis is partially supported as an increase of perceived stress reduces satisfaction with life. Improved work-life balance increases satisfaction with life, and increases in perception of work unfairness decreases satisfaction with life. Effects of stress on satisfaction with life are interrelated with other factors that have their own unique contribution to satisfaction.



## Chapter V: Discussion

This study attempts to address the gap in the literature on stress and the work of 9-1-1 police call-takers and dispatchers. Four hypotheses were tested: (1) call-takers/dispatchers with greater work-life balance, higher perceptions of fairness at work, greater support at home, and greater work control will self-report lower stress levels; (2) call-takers/dispatchers who report more stress will report more negative physiological outcomes; (3) call-takers/dispatchers who report more stress levels will report more negative psychological outcomes; (4) call-takers/dispatchers who report less stress, greater work-life balance, higher perceptions of fairness at work, greater support at home, and greater work control will report higher satisfaction with life. There is support for these claims as the analysis here indicates that work-life balance has a significant dependent relationship with stress. The analysis is to a limited degree consistent with the body of work as related to stress and policing (Gershon et al., 2009; Hart et al., 1995; Sheehan & Van Hasselt, 2003).

Stress is associated with negative physiological and psychological outcomes among sworn personnel. The findings in this study affirm the belief that there is a relationship between stress and call-takers and dispatchers which indicates that there may be a correlation between physiological and psychological symptomatology even though they are not in the field dealing with the person(s) or situation(s) one-on-one. The secondary exposure to the problems of those in need may be influencing perceived stress and associated outcomes.

In addition, the psychological studies of police officers indicate that repeated traumatic stress exposure may manifest in different ways, with some managing to remain resilient and others displaying the symptomatology of traumatic stress disorder(s). While the limitation of this study is its small sample and cross-sectional data, the initial indicators reveal that call-takers

and dispatchers may exhibit similar psychological outcomes because of their repeated secondary exposure to the myriad of public encounters.

In this research, stress, work-life balance, and workplace unfairness have independent effects on satisfaction with life. In research on police officers, the overall sense of life satisfaction has been significantly correlated with officers who rate higher in resiliency to stress (Paton, 2008). The findings in this research are also consistent with the literature in that satisfaction with life is significantly related to work-life balance, as those who report higher work-life balance also report higher satisfaction with life.

The variables work-life balance, satisfaction with life, physiological and psychological outcomes were significantly related with stress while work control, institutional fairness and support at home did not indicate a significant influence or predictor of stress outcomes. Upon closer examination of Table 17, the majority of the respondents reported that they received support from their families and often talked to their spouse or friends about their problems. Furthermore, those receiving support at home also indicated they were more likely to have work-life balance,  $r = .434$  (Appendix B). This may explain why the variables, support at home, and satisfaction with life were not related while controlling for other variables

The results of the work control variable were mixed in that most respondents disagreed that they had control over the pace of their work, when they could start or finish a piece of work, how much work they could accomplish, and the order in which they could do things. However, most agreed they could decide how to go about their job. The mixed results may partially explain why work control and satisfaction with life are not related, controlling for other variables.

Results also revealed that institutional fairness variable is not significantly related to satisfaction with life. However, when the institutional fairness variable is analyzed without the controlling variables, it appears to be significantly related to satisfaction with life,  $p < .05$ . The observation is interesting in that the respondents' answers about work unfairness indicate that while most feel more equity in how they are individually chosen for assignments based upon things such as race, gender, and religion, they do not feel the same regarding institutional fairness. Most disagreed that all call-takers were treated the same way regardless of personal differences. The lack of correlation, when the controlling variables are introduced, may indicate interrelatedness between the variables in that effects of institutional fairness, when controlled, are no longer significantly related to satisfaction with life. Therefore, it is plausible that institutional fairness is a derivative of work unfairness.

### **Limitations**

This study is limited to a single police agency, and, with that limitation, the question becomes whether the results seen here are consistent across the industry as a whole. Therefore, additional study of Public Safety Answering Points (PSAP) in police departments of varying sizes, locations, and population sizes would provide a broader spectrum of respondents to validate the findings. Of special interest are the 454 PSAPs in the State of California because they are overseen by the professional standards defined by Peace Officer Standards and Training (POST) and, thereby, provide the baseline of professional credentialing and standards.

Further research identifying the possibility of perceived stress being related to the types of calls received, time between calls for service, individual stressors, and organizational stressors would aid in identifying the particular nuances of stressors and possibly mitigating or preventing

them from manifesting to harmful levels. This would allow for the opportunity to empirically determine the number of potential secondary stress exposures.

Finally, a longitudinal study examining employees from the onset of employment with periodic reexaminations during their tenure would establish a baseline and improve the validity of the results. It would also aid in identifying whether dispatchers experience higher rates of stress on the whole or if their stress rates are consistent with other caretaker/service industries as a group. Moreover, the mixed results involving work control may warrant the study of the separate classifications, call-taker, or dispatcher, to determine if the two groups report similarly.

## **Conclusion**

The results of the study have far reaching real-world implications for those working in the professional capacity as 9-1-1 call-takers and dispatchers. Implications that the institution or organizational structure itself mitigates some of the revelations of the study, this is supported by the seven major findings in the study: (1) employees are experiencing stress, (2) work-life balance is related to stress, (3) stress is related to physiological problems, (4) stress is related to psychological problems, (5) stress is associated with lower satisfaction with life, (6) work-life balance is associated to greater satisfaction with life, and (7) work-unfairness is associated with satisfaction with life.

Given the results, the challenge then becomes how the organizational or institutional structure could influence a paradigm shift to promote healthy workers and in turn positively impact problematic symptoms of stress and the negative correlations such as physiological and psychological problems. The only robust predictor of stress in the study was work-life balance. If the balance between work commitment and life obligations is more equitable, stress would be reduced and in turn employees would exhibit fewer indicators of stress.

Accordingly, several areas affecting communication center employees pose as institutional barriers to work-life balance. Traditionally, those barriers are mandatory overtime, minimum staffing levels, work-shift hours, mandatory work-shift rotation, and time-off policies. Conceivably, the administration that created the barriers also retains the authority to redress them and mitigate the demands of the workplace, thus alleviating 9-1-1 employees of stressors via less conflict between one's personal life and career.

On another note, employees more satisfied with life are likely healthier, more loyal to the career, and more productive over time. Less stress, greater work-life balance, and greater fairness at work would likely improve life satisfaction. The perception of unfairness may be mitigated by adopting managerial styles consistent with transparency and equity as well as human resources strategies that demonstrate that personal attributes (sex, age, race, and so forth) not associated with job performance are not used in making employment decisions. Such changes within call centers are conceivable by instituting leadership development curricula and work environment training.

Finally, the relationships between workplace factors discovered in this research provide a platform for the development of future research in the area of stress and 9-1-1 call-takers and dispatchers. Only with further research into civilian call-takers and dispatchers will we fully appreciate the similarities and dissimilarities of this unique group to sworn police personnel.

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## Appendix A

### Consent Form Agreement to Participate in Research

Responsible Investigator(s): Kimberly Turner, SJSU Student

Title of Study: Effects of Stress on 9-1-1 Call-takers and Dispatchers

1. You have been asked to participate in a research study investigating the effects of stress on 9-1-1 Call-takers and Dispatchers.
2. You will be asked to an electronic survey. An example of the survey is attached.
3. Completing the survey involves no risk to you.
4. You and other employees will benefit if this research is used by the City of San Jose and/or state government to enhance the quality of your employee benefits.
5. Although the results of this study may be published, no information that could identify you will be included.
6. There is no compensation for participation.
7. Questions about this research may be addressed to:

Kimberly Turner – City of San Jose  
(408) 277-8995  
[Kimberly.Turner@sanjoseca.gov](mailto:Kimberly.Turner@sanjoseca.gov)

Complaints about the research may be presented to:

Dr. Mark Correia – San Jose State University (408) 924-2940  
College of Applied Arts and Sciences – Justice Studies

Questions about a research subjects' rights, or research-related injury may be presented to Pamela Stacks, Ph.D., Associate Vice President, Graduate Studies and Research, at (408) 924-2427.

8. No service of any kind, to which you are otherwise entitled, will be lost or jeopardized if you choose not to participate in the study.

9. Your consent is being given voluntarily. You may refuse to participate in the entire study or in any part of the study. You have the right not to answer questions you do not wish to answer. If you decide to participate in the study, you are free to withdraw at any time without any negative effect on your relations with San Jose State University or with the City of San Jose including the San Jose Police Department and Bureau of Technical Services Communications Division

10. At the time that you sign this consent form, you will receive a copy of it for your records, signed and dated by the investigator.

**The signature of a researcher on this document indicates agreement to include the above named subject in the research and attestation that the subject has been fully informed of his or her rights.**

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Investigator's Signature

---

Date

## Appendix B

### Correlations among Independent Variables

	1	2	3	4	5	6	7	8	9
1 Perceived Stress	1	-							
2 Work-Life Balance	-.559**	1							
3 Work Unfairness	.286**	-.172	1						
4 Support At Home	-.352**	.434**	-.093	1					
5 Work Control	-.149	.137	-.046	.058	1				
6 Institutional Fairness	-.296**	.261*	-.267*	.216*	.209	1			
7 Satisfaction with Life	-.543**	.532**	-.375**	.402**	.270*	.278*	1		
8 Physiological	.323**	-.403**	.252*	-.160	.091	-.122	-.320**	1	
9 Psychological	.288**	-.005	.222*	-.066	.205	-.124	-.121	.070	1

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*Note.* \* $p < .05$ , \*\* $p < .01$ ., two-tailed