2022

Impact of Trauma on Job Satisfaction and Turnover Intention Among Emergency Dispatchers

Sherrie Johnston
Walden University

Walden University

College of Management and Human Potential

This is to certify that the doctoral dissertation by

Sherrie Megan Johnston

has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
the review committee have been made.

Review Committee
Dr. Derek Rohde, Committee Chairperson, Psychology Faculty
Dr. Rachel Gallardo, Committee Member, Psychology Faculty
Dr. Brian Cesario, University Reviewer, Psychology Faculty

Chief Academic Officer and Provost
Sue Subocz, Ph.D.

Walden University
2022

Abstract

Impact of Trauma on Job Satisfaction and Turnover Intention Among Emergency Dispatchers

by

Sherrie Megan Johnston

MS, Walden University, 2017

MS, Walden University, 2016

MA, Ashford University, 2014

BS, Ashford University, 2013

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Industrial and Organizational Psychology

Walden University

May 2022

Abstract

Emergency dispatchers in the United States are exposed to traumatic events, which may lead to a staffing shortage. Though it is well-established that decreased job satisfaction increases turnover intentions, little research investigates whether trauma impacts these constructs. Therefore, this quantitative non-experimental study was focused on whether education was a protective factor against posttraumatic stress disorder (PTSD) and whether trauma moderated the relationship between job satisfaction and turnover intention among emergency dispatchers. The relationship between vicarious trauma (VT) and PTSD among dispatchers was examined, and whether it is possible to predict PTSD among dispatchers based on VT, education level, and job satisfaction. The cognitive model of PTSD and the constructivist self-development theory was the theoretical foundation. Linear and multiple regression analyses were used to build a foundational understanding of trauma's impact on dispatchers. Results for research questions 5 and 6 were statistically significant, indicating a relationship between PTSD and VT and that VT and job satisfaction predict the existence of PTSD among emergency dispatchers. The knowledge gained from this study may promote positive social change by helping employers reduce turnover rates, decrease wait times for callers experiencing life-threatening emergencies, and increase the quality of emergency services provided to the public.

Impact of Trauma on Job Satisfaction and Turnover Intention Among Emergency Dispatchers

by

Sherrie Megan Johnston

MS, Walden University, 2017

MS, Walden University, 2016

MA, Ashford University, 2014

BS, Ashford University, 2013

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

Industrial and Organizational Psychology

Walden University

May 2022

Dedication

This work is dedicated to my husband, Leroy Johnston, for his endless support and my father, Mike King, who inspired me to succeed academically since the day I was born.

Acknowledgments

To my husband, Leroy: This has been a challenging experience and, at times, caused great distress for both of us. You never stopped pushing me forward and reminded me that I am capable every step of the way. It was a great comfort and relief to know that you would be there when I struggled to bring anything I needed while completing my work.

I cannot express enough thanks to my committee chair for his continued support and encouragement. To Dr. Derek Rohde, I offer my sincere appreciation for pushing me to continue this process despite wanting to give up on many occasions.

Thank you for everything you do to my friends, coworkers, and other emergency dispatchers. You do not realize the impact your job has on the lives of others, but one day we will change that.

Table of Contents

List of Tables

List of Figures

Chapter 1: Introduction to the Study

The U.S. Department of Transportation (2017) estimated that more than 240 million calls are made to 911 for emergency services annually. This number indicates an ongoing need for trained and experienced dispatch personnel to work at the country's various public safety answering points (PSAPs). Emergency dispatchers, or telecommunicators, are exposed to mental health issues, substance abuse problems, assaults, homicides, fires, and other emergencies. Furthermore, each call can present additional stressors, including ambiguous information, highly complex and multifaceted medical needs, communication difficulties due to language barriers or technology, and sending assistance to remote locations (Adams et al., 2018; Lilly & Pierce, 2013). As a result, emergency dispatchers have reported experiencing significant emotional distress, depressive, and trauma-based symptoms (Golding et al., 2017; Lilly & Pierce, 2013; Riou et al., 2018; Venet, 2018). Though only a few studies have directly investigated the impact trauma may have on emergency dispatchers, the existing research suggests telecommunicators experience stress levels equal to or exceeding those of other on-scene first responders (Adams et al., 2018). Further, emergency dispatchers may be more prone to stress-related burnout than police officers and have access to fewer resources necessary to maintain wellness (Baseman et al., 2018; Klimeley et al., 2018; Lilly & Pierce, 2013; Miller et al., 2017).

Emotional distress, depressive, and other trauma-based symptoms, frequently the result of exposure to vicarious trauma, have contributed to a higher-than-national average

turnover rate of 19% in 2012 (Baseman et al., 2018; Frederiksen, 2017; Lee et al., 2017). A high turnover rate directly results in fewer and less experienced dispatchers, and the situation is made significantly worse by the increasing demand for PSAPs in the United States (Baseman et al., 2018; Klimeley et al., 2018; Lilly & Pierce, 2013; Miller et al., 2017). Although some local government entities are taking steps to recognize the efforts of 911 telecommunicators, current federal legislation does not consider emergency dispatchers to be members of the first-responder category (Bureau of Labor Statistics, 2018). They are not privy to many of the resources and benefits other groups like firefighters, law enforcement personnel, or medical personnel have access to, nor are they emphasized in current literature (Baseman et al., 2018).

Because most of the existing research focuses on ground-level first responders (e.g., Carleton et al., 2018; Klimeley et al., 2018; Krakauer et al., 2020), the emphasis for this study will be on how trauma impacts emergency dispatchers, their job satisfaction levels, and turnover intention. This study's results may support the current legislative push to reclassify emergency dispatchers as first responders to ensure their place as protective personnel in the Standard Occupational Classification System (SOC) published by the Bureau of Labor Statistics (2018). This reclassification would improve access to mental health and wellness resources, increase flexibility in scheduling options, and provide management with additional options for improving retention. Beyond politics, this study's results could provide a foundation for advocates to encourage a more trauma-informed approach for emergency dispatchers. A better understanding of how trauma

impacts dispatchers could invigorate efforts to reduce stress and trauma-based symptoms, increase job satisfaction rates, and reduce turnover to provide citizens better access to informed and experienced telecommunicators.

Chapter 1 will present the background, problem statement, purpose, research questions, and significance of the study. Additionally, this chapter will include a brief description of the methods, nature of the study, procedures, scope, delimitations, and limitations of the study. This chapter concludes with a summary.

Background

In 1968, the Federal Communications Commission established a three-digit emergency code with AT&T, making the system just over 50 years old (National Emergency Number Association, 2018). Advanced features began to appear in the early 70s, and today, approximately 96% of the United States is covered by the 911 service number (National Emergency Number Association, 2018). In 2017, 38 U.S. states and territories reported 212,036,639 total calls delivered to 911, significantly increasing from the previous year's report of 181,720,179 total calls (U.S. Department of Transportation, 2017). Emergency dispatchers are the first of the first responders responsible for "maintaining the cognitive and emotional resources to perform complex, multiple tasks and make precise decisions with fateful consequences under life/death time pressures while staying calm" (Baseman et al., 2018, *p*. 2). Still, they have consistently remained categorized as administrative professionals and thus seen as "less critical" in public safety (Klimeley et al., 2018; Maguire et al., 2018).

Although there is a consistently increasing call volume across the country, dispatchers in the United States continue to face a higher-than-average national turnover rate of 19% as of 2012 (Baseman et al., 2018; Frederiksen, 2017; Lee et al., 2017). About two out of every ten dispatchers leave the position each year. These rates have a negative impact on the quality of services provided. Replacement personnel must be recruited and adequately trained to conduct the position's essential functions before working independently. Furthermore, high turnover rates reduce general morale among existing employees and may trigger additional turnover intention among those left behind, especially if the turnover was unexpected or involved a close coworker (Lee et al., 2018; Lopez-Martin & Topa, 2019).

Turnover Intention

One of the most critical issues this study addressed is emergency dispatchers' high turnover rates. All organizations face turnover, and it is not always a negative construct. However, high turnover rates usually indicate dissatisfaction with the employer's position. The result includes staff shortages, increased recruitment and training costs, and reduced overall experience among staff members (Bakkal et al., 2019; Bothma & Roodt, 2013). Turnover can be voluntary or involuntary, functional, or dysfunctional depending on the situation, but in the end, an employee-employer relationship ends (Bothma & Roodt, 2013; Saeed et al., 2014).

Job Satisfaction

Because the study addressed turnover among emergency dispatchers, it is

essential to investigate at least one construct consistently associated with turnover: job satisfaction. Job satisfaction is a subjective construct best defined as a set of feelings that a person holds about their work (de Oliveria et al., 2019; Fasbender et al., 2018; Lee et al., 2017; Zito et al., 2018). Theories on the subject suggest that if an employee does not like where they work and has a viable alternative, the likelihood of the employee leaving increases (Lee et al., 2018). High levels of job satisfaction are associated with increased productivity, stronger motivation, decreased stress, and increased satisfaction in other areas of life (Spector, 1994; Yousef, 2017). Due to its subjective quality, job satisfaction can be assessed using various criteria including wages, schedule and flexibility, recognition, job security, the nature of the work itself, benefits, and stress levels (Abuhashesh et al., 2019; Mira et al., 2019).

Types of Traumas

One key area to investigate when considering the more challenging aspects of emergency dispatch is exposure to trauma. Trauma is categorized and labeled in dozens of ways depending on how trauma was experienced, the nature of the trauma, and a person's age when the trauma occurred (American Psychiatric Association, 2013; Ehlers & Clark, 2008). For example, the National Child Traumatic Stress Network (2019) currently lists 12 common types of trauma: bullying, community violence, complex trauma, disaster trauma, early childhood trauma, intimate partner violence, medical trauma, physical abuse, refugee trauma, sexual abuse, terrorism and violence, and traumatic grief. Trauma can be experienced firsthand or secondhand and may be acute,

chronic, or accumulative (Benuto et al., 2018; Branson, 2019). Though not everyone who experiences trauma will develop a traumatic disorder, it is estimated that 70% of adults have experienced at least one type of trauma in their lives (Foreman, 2018). However, according to the American Psychiatric Association (2013), the projected lifetime risk for developing posttraumatic stress disorder (PTSD) at age 75 using the DSM-IV criteria was only 8.7%.

Every call or radio transmission holds the potential for a traumatic experience, and dispatchers are frequently exposed to multiple traumas each shift (Baseman et al., 2018). For example, a dispatcher may receive a phone call in which an infant has stopped breathing and guide a parent through CPR (Riou et al., 2018), disconnect when paramedics arrive, and pick up the phone to a caller who commits suicide while juggling an officer-involved shooting on the radio (Pierce & Lilly, 2012). For this study, three specific types of trauma that emergency dispatchers are most frequently exposed to in the workplace will be discussed: PTSD, secondary traumatic stress, and vicarious trauma.

Posttraumatic Stress Disorder

PTSD is most simply defined using the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; American Psychiatric Association, 2013). Using the DSM-5, PTSD can be defined as a psychological condition resulting in intense thoughts or feelings related to a traumatic experience after the traumatic event. For a clinical diagnosis of PTSD, exposure must occur through at least one of the following ways: direct experience, witnessing the event in person, learning that the event happened to a

close friend or family member, or repeated or extreme exposure to aversive details not through electronic media (unless work-related; American Psychiatric Association, 2013). Common symptoms include intrusive thoughts, persistent avoidance of associated stimuli, negative alterations in cognition or mood, and alterations in arousal or reactivity (American Psychiatric Association, 2013; Schnurr & Lunney, 2016; Silverstein et al., 2018).

Secondary Traumatic Stress

Secondary traumatic stress (STS) results from continually hearing difficulty or upsetting information and an overwhelming desire to want to help the individual experiencing the trauma (Branson, 2019; Bride & Kintzle, 2011). Before the development of the DSM-5, STS was not considered a clinical diagnosis (Rowden-Foreman et al., 2017). However, Criterion A4 in the DSM-5 (American Psychiatric Association, 2013) makes STS a form of PTSD instead of a unique condition for individuals with repeated or extreme exposure to aversive details of traumatic events, not through electronic media unless the exposure is work-related. The pervasiveness of the term STS makes it essential to address the construct on an individual level in this study, but STS will be referred to as PTSD from this point forward.

Vicarious Trauma

Vicarious trauma is not a clinical diagnosis available for clinicians using the DSM-5. However, helping jobs (therapists, first responders, health care providers, clergy, and lawyers) may develop vicarious traumatization due to being exposed to secondary

trauma through their clientele (Benuto et al., 2018; Foreman, 2018). Vicarious trauma is unique from secondary PTSD because it develops over a more extended period, symptoms are generally more pervasive or sometimes permanent, and changes can disrupt identity, self-perception, spirituality, and worldview (Foreman, 2018). Though unique from PTSD, vicarious trauma shares many symptoms with PTSD, including re-experiencing and avoiding the traumatic situation, depressed mood, social withdrawal, aggression, sensitivity to violence, sleep troubles, sexual difficulties, and difficulty with security, trust, and esteem (Benuto et al., 2018; Foreman, 2018). Furthermore, vicarious trauma can lead to pessimism, feelings of powerlessness, vulnerability, or alterations in arousal and reactivity, including increased anxiety levels, increased absenteeism from work, negative coping skills, reduction in longevity in the field, and stress-induced medical conditions (Branson, 2019; Newman et al., 2019). Finally, vicarious trauma can result in apathy, anger, cynicism toward clientele, and poor decision-making, resulting in decreased quality of services (Branson, 2019).

Administrative Categorization

Because emergency dispatchers are categorized as administrative personnel in the SOC published by the Bureau of Labor Statistics (2018), they have limited access to health and wellness services, which could increase the risk of developing maladaptive coping mechanisms, STS, compassion fatigue, and burnout (APCO International, 2018; Klimeley et al., 2018; Miller et al., 2017). In conjunction with the Fair Labor Standards Act (FLSA), this classification currently limits flexibility with scheduling, hours, and

pay, which can cause undue stress for the employee. The belief that public safety telecommunicators are not exposed to trauma has resulted in minimal research to analyze the impact trauma has on emergency dispatchers (Adams et al., 2018; Baseman et al., 2018; Klimeley et al., 2018). A reclassification for public safety telecommunicators to a protective service category within the SOC would: (a) improve flexibility in scheduling, (b) increase access to resources and benefits not typically available to administrative personnel, and (c) improve the quality of services offered to the public by reducing turnover rates and improved job satisfaction levels (Baseman et al., 2018; Bedini et al., 2017; Hales et al., 2017; Hartley et al., 2013; Ma & Burchfiel, 2017; Miller et al., 2018; Riou et al., 2018). Though one of the standard arguments against recategorizing emergency dispatchers is that they are safely located in an administrative building away from the traumatic events and thus are not exposed to traumatic events (Shakespeare-Finch et al., 2015), learning of a traumatic event or experiencing repeated or extreme exposure to aversive details of a traumatic event (including through electronic media if the event is work-related) is diagnostic criteria for PTSD and acute stress disorder.

Knowledge Gap

There is already extensive literature on job satisfaction and turnover intention, but there is a gap in investigating how trauma might impact either of the two constructs. Furthermore, there is minimal research on emergency dispatchers. Historically, public safety telecommunicators have been viewed as clerical personnel with responsibilities like those of a traditional secretary or non-emergency dispatcher. As a result, the majority

of research into emergency services has excluded telecommunicators and emphasized the health and well-being of firefighters, law enforcement personnel, emergency medical technicians, and other responders that are physically on the scene in the early moments of a crisis (Dunn et al., 2017; Marmar et al., 2006; Hartley et al., 2013). However, the United States is just passing the 50th anniversary of the creation of 911. As a result, politicians and researchers are finally starting to investigate and recognize the significant impact emergency dispatchers can have on the overall outcome of a crisis. By assessing whether trauma impacts job satisfaction and turnover intention, it may be possible to identify why turnover is so high among emergency dispatchers and later reduce that rate using trauma-informed care techniques.

Problem Statement

Telecommunicators across the country face a higher-than-national average turnover rate despite the ever-increasing demand for their services. The resulting outcomes include staff shortages (Berkeley City Auditor, 2019; Rucker, 2020), inexperienced dispatchers (Segall, 2002; Wallace, 2020), mandatory overtime (Racke, 2020; Wallace, 2020), lengthier wait times for callers resulting in loss of life or limb (Segall, 2020), and burnout for remaining employees (Krakauer et al., 2020; Segall, 2020; Shakespeare-Finch & Armstrong, 2015). On a larger scale, these issues can all have high societal costs, including increased medical bills, losses associated with employees calling out sick, and decreased quality of emergency services to the public (Meischke et al., 2018). Despite these shortages, there has been little investigation into

how an emergency dispatcher's exposure to trauma may impact their job satisfaction levels and, subsequently, their turnover intention. Therefore, I investigated the impact of trauma on job satisfaction and turnover intention among emergency dispatchers in the United States.

Purpose of the Study

This quantitative study aimed to investigate the impact trauma may have on the relationship between job satisfaction levels and turnover intention among emergency dispatchers in the United States. This study can inform future research on telecommunicators and support political efforts to reclassify dispatching as a protective occupation in the SOC. Additionally, the results can show the impact trauma can have on emergency dispatchers, encouraging support measures to reduce turnover rates at PSAPs. For example, by directly investigating the impact of audible exposure to trauma, employees, politicians, and other advocates can more effectively assess the allocation of funds for health and wellness programs. For this study, the predictor variable was job satisfaction rates measured by the Job Satisfaction Scale (JSS), and the criterion variable was turnover intention. Trauma served as the moderator as there is a documented correlation between job satisfaction and turnover intention.

Research Questions and Hypotheses

Research Question 1: Does education level predict the existence of PTSD based on the Posttraumatic Checklist for the DSM-5 (PCL-5) cutoff score of 31-33?

$H_0$1: Education level does not predict the existence of PTSD based on the PCL-5

cutoff score of 31-33.

H_a1: Education level does predict the existence of PTSD based on the PCL-5 cutoff score of 31

Research Question 2: Does education level predict the severity of PTSD symptoms based on the PCL-5?

$H_0 2$: Education level does not predict the severity of PTSD symptoms based on the PCL-5.

$H_a 2$: Education level does predict the severity of PTSD symptoms based on the PCL-5.

Research Question 3: Does PTSD moderate the relationship between job satisfaction and turnover intention?

$H_0 3$: PTSD does not moderate the relationship between job satisfaction and turnover intention among dispatchers.

$H_a 3$: PTSD moderates the relationship between job satisfaction and turnover intention among dispatchers.

Research Question 4: Does vicarious trauma moderate the relationship between job satisfaction and turnover intention?

$H_0 4$: Vicarious trauma does not moderate the relationship between job satisfaction and turnover intention among dispatchers.

$H_a 4$: Vicarious trauma moderates the relationship between job satisfaction and turnover intention among dispatchers.

Research Question 5: Is there a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers?

$H_0$5: There is a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers.

H_a5: There is no relationship between vicarious trauma and PTSD symptoms among emergency dispatchers.

Research Question 6: Do vicarious trauma and job satisfaction levels predict the existence of PTSD among emergency dispatchers?

H_{06}: Vicarious trauma and job satisfaction levels do not predict the existence of PTSD among emergency dispatchers.

H_a6: Vicarious trauma and job satisfaction levels do not predict the existence of PTSD among emergency dispatchers.

Theoretical Foundation

Two essential theoretical frameworks used in this study include the cognitive model of PTSD proposed by Ehlers and Clark (2000) and the constructivist self-development theory (CSDT) proposed by McCann et al. (1988) and later expanded on by McCann and Pearlman (1990). This study relied on both theoretical frameworks to account for emergency dispatchers that develop trauma or stress disorders and those that do not.

Cognitive Model of PTSD

The cognitive model of PTSD proposed by Ehlers and Clark (2000) suggests that

persistent PTSD occurs as individuals process their trauma. This may result from an excessively negative appraisal of trauma or a disturbance of the autobiographical memory of the trauma. These memories may be incomplete or inaccurate due to poor elaboration, insufficient contextualization, a robust associative memory, or strong perceptual priming (Ehlers & Clark, 2000). For instance, Emergency dispatchers are often exposed to calls that lack visual or physical connections, often resulting in the need to use visualization that can leave residual memories of a caller's emotional state (Adams et al., 2018). Ehlers and Clark suggested three maladaptive behavioral strategies commonly employed to control the threat of danger or symptoms of PTSD, including directly producing the symptoms, preventing a change in the negative appraisals of the trauma, and preventing a modification in the traumatic memory. Examples of these strategies include avoidance behaviors, hypervigilance, alcohol or drug use, numbing emotions, and ruminating about how the event could have been changed or prevented (American Psychiatric Association, 2013; Ehlers & Clark, 2000). These symptoms, along with avoidance behaviors, emotional regulation problems, and similar symptoms, are commonly associated with reduced job satisfaction, negative outlook, and poor workplace performance (American Psychiatric Association, 2013; Ehlers & Clark, 2000).

CSDT

The CSDT relies on the premise that individuals construct their realities based on highly complex cognitive structures referred to as schemas used to interpret events (McCann & Pearlman, 1990). These schemas include beliefs, assumptions, and

expectations that become more complex throughout a person's lifespan. McCann et al. (1988) identified five key domains that impact a person's response to trauma, including needs in safety, trust, esteem, intimacy, and control. Furthermore, the CSDT proposes that exposure to stressful or traumatic events can interfere with a person's cognitive schemas in positive or negative ways, fundamentally disrupting their stability (McCann et al., 1988; Miller et al., 2010). The same event can impact people in significantly different ways. The experience is generally processed through the person's existing schema, becomes associated with specific emotions and thoughts, and affects the understanding of future experiences (Miller et al., 2010). The changes associated with PTSD can have a relatively rapid onset (i.e., following a single traumatic event) and impact behavioral and cognitive constructs. However, the psychological adaptations associated with schemas are developed over long periods and can be pervasive or permanent. The inclusion of the CSDT in this study is intended to recognize that not every person exposed to stress or trauma will develop a traumatic disorder. However, they will likely experience some changes to their schema.

Nature of the Study

This study was intended to investigate whether the nature of emergency dispatching results in either PTSD or vicarious trauma and whether trauma influences the relationship between job satisfaction and turnover intention. This quantitative correlational study involved a moderator analysis in determining whether a relationship exists between trauma, job satisfaction, and turnover intention among emergency

dispatchers. Additionally, I investigated whether there is a correlation between trauma and job satisfaction levels and whether a correlation exists between trauma and turnover intention.

The moderator variable for this study was trauma as measured by the PCL-5 (Weathers et al., 2013) and the Vicarious Trauma Scale (VTS; Vrklevski & Franklin, 2008). The predictor variable was job satisfaction as measured by the JSS (Spector, 1994), and the criterion variable was turnover intention as measured by the Turnover Intention Scale 6 (TIS-6; Roodt, 2004). There was no intervention applied during this study, nor were any variables controlled or manipulated (Creswell & Creswell, 2018; Groves et al., 2009).

Operational Definitions

First responders: First responders were defined to include firefighting personnel, emergency medical personnel that responded on scene (as opposed to in a hospital setting), and law enforcement personnel. This group is defined using current federal legislation.

Job satisfaction: Job satisfaction was defined using Spector's (1994) definition of the extent to which people like or dislike their job globally and regarding specific facets. For this study, job satisfaction was rated using Spector's nine job satisfaction facets: pay and remuneration, fringe benefits, immediate supervision, operating procedures, coworkers, communication within the organization, contingent rewards, promotional opportunities, and the nature of the work itself. Each of these aspects, along with an

overall score, was identified using Spector's JSS.

PTSD symptom severity: PTSD symptom severity was defined using the PCL-5, which allows for a score of 0–80, with the PTSD threshold cutoff recommendation at 31 to 33. The PCL-5 has a strong internal consistency (α = .94), test-retest reliability (*r* = .82), convergent validity (rs = .74 to .85) and discriminant validity (rs = .31 to .60; Blevins et al., 2015). Individuals scoring lower than 31–33 were considered to have subthreshold symptoms of PTSD and thus will have a low severity rating (Blevins et al., 2015).

Public safety telecommunicators: Telecommunicators in this study were identified as individuals currently employed in a PSAP. These individuals are responsible for operating telephones, radios, and other communication systems to receive, organize, and relay requests for emergency services under the SOC (Bureau of Labor Statistics, 2018). These individuals were also referred to as telecommunicators, dispatchers, 911 dispatchers, and emergency dispatchers.

Standard Occupational Classification System (SOC): The SOC is a method of classifying various occupations in the United States into one of 23 significant groups to better coordinate federal statistics (Bureau of Labor Statistics, 2018). Under the SOC, emergency dispatchers or "public safety telecommunicators" are classified under "office and administrative support occupations" (43-5031).

Turnover intention: The turnover intention is the extent to which an employee plans to leave the organization (Botham & Roodt, 2013). In this study, it was considered

distinct from an employee's subjective emotions about the organization. Turnover intention was measured by Roodt's (2004) TIS-6, which consists of six items rated on a 5-point Likert scale. Cronbach's α was found to be .80 during testing (Botham & Roodt, 2013) for the TIS-6, suggesting this is a reliable measure.

Vicarious trauma: Vicarious trauma was identified as detrimental changes in the way helping professionals understand and interpret the world due to exposure to secondary trauma (McCann & Pearlman, 1990). This construct was measured by Vrklevski and Franklin's (2008) VTS, which is comprised of eight items rated on a 7-point Likert scale where a score of 1 is rated as *strongly disagree*, and a score of 7 represents *strongly agree*. The measure has been validated for use in various populations and had a Cronbach's α of .88, suggesting it is a highly reliable measure. During a confirmatory factor analysis, Benuto et al. (2018) found a Cronbach's α value of .83 to support the use of the VTS further.

Assumptions

This study required several essential assumptions. First, as with all quantitative research, it was assumed that reality is objective and independent of the researcher such that it can be studied objectively (Creswell, 2009; Groves et al., 2009). Second, it was assumed that all participants met the inclusion criteria as emergency dispatchers over age 18 capable of providing informed consent. Third, it was assumed that the participants were sincere in giving truthful survey responses. Fourth, it was assumed that every participant had experienced at least one traumatic or stressful event during their

employment as an emergency dispatcher.

Scope and Delimitations

For this study, only PTSD and vicarious trauma were investigated among emergency dispatchers as these two forms most closely resemble what telecommunicators are exposed to in their daily work. Neither PTSD nor vicarious trauma explicitly define a type of trauma (i.e., bullying, workplace violence), so it was easier to assess a broader population of emergency dispatchers without limiting it to only one specialty. For this study, emergency dispatchers included anyone working in a medical, firefighting, law enforcement, or multidisciplinary environment. Non-emergency dispatchers were not included in this study. Furthermore, only emergency dispatchers aged 18 or more were included using a voluntary or convenience non-probability sample (see de Vries, 1986; Nassiuma, 2000). The age requirement ensured that juveniles working in the field in a high school setting or similar environment were not included in the research. The study was conducted nationally in the United States using an online survey to reach the most geographically diverse audience possible and improve generalizability by including dispatchers with unique experiences.

This study aimed to address higher-than-average turnover rates among emergency dispatchers in the United States and investigate whether trauma moderates the relationship between job satisfaction and turnover intention among these individuals. The study was not intended to explain turnover among emergency dispatchers, nor was it intended to thoroughly investigate the other components associated with job satisfaction

rates among telecommunicators. Furthermore, this study was not designed to determine whether job turnover intention results in actual turnover among emergency dispatchers. It was also not intended to investigate the implications of higher-than-average turnover rates.

Limitations

A few limitations may prevent this study's generalizability, including existing or comorbid mental health disorders, physical ailments, or substance use disorders, as this information would not be disclosed. These include, but are not limited to, the various personality or mood disorders outlined in the DSM-5 (American Psychiatric Association, 2013), which can significantly impact job satisfaction and the severity of trauma-related symptoms. A second limitation of this study results from the self-reported nature of the surveys. Some individuals may have been uncomfortable providing truthful responses and may have completed the surveys in a way they believed would best serve me, which could impact the study's validity. Finally, individual differences among various telecommunicators, including the types of emergencies participants are exposed to, may challenge generalization.

Significance of the Study

Under the SOC, emergency dispatchers or public safety telecommunicators are classified under "office and administrative support occupations" (43-5031). However, in 2014 APCO petitioned for the reclassification of public safety telecommunicators to a protective occupation. This category includes police officers, fish and game wardens,

security guards, firefighters, and school bus monitors. This motion was denied, but a new bill was introduced in 2019 by Representative Norma Torres in another attempt at reclassification. Since this bill was introduced, some states have taken measures to reclassify dispatchers as protective personnel individually, but this has not taken place on a federal level at the time of this study. Reclassifying emergency dispatchers to a protective service within the SOC would improve access to resources and benefits not typically available to administrative personnel. The results of this study may be used to encourage a reclassification of emergency dispatchers.

Additionally, though numerous studies investigate trauma's impact on other protective services members (Marmar et al., 2006; Hartley et al., 2013; Dunn et al., 2017), few exist on whether emergency dispatchers are similarly impacted. This study can expand the literature on trauma among emergency dispatchers. By improving the understanding of emergency dispatchers, it may be possible to reduce a significant annual expense and improve organizational functionality (Hales et al., 2017). The United States spends approximately 2 billion dollars annually on PTSD-related expenses, with more than half being attributed to the loss of work productivity (Harris et al., 2017). This is a severe issue for the economy, organizations, and employees alike, as rising costs can significantly impact financial security, profitability, and overall quality of life (Adams et al., 2018; Klimeley et al., 2018; Pierce & Lilly, 2012). Furthermore, this study's results could inform practices that minimize the impact of trauma, thus better facilitating the retention of qualified and experienced first responders to improve services to their local

communities (Hales et al., 2017; Hartley et al., 2013; Ma & Burchfiel, 2017).

Summary and Transition

Emergency dispatchers face several challenges in their field, including high turnover rates, frequent exposure to trauma and stressful events, and limited access to benefits and resources usually available to other first responders. Though the nature of the work cannot be changed, the exposure to trauma can be assessed more closely to determine whether it moderates the known correlation between job satisfaction rates and turnover intention. Once the role trauma plays is more clearly defined, organizations looking to improve job satisfaction rates and reduce turnover intentions among emergency dispatchers can either be prioritized or deemphasized.

This section concludes Chapter 1, which includes a general background of the study, the problem statement, nature of the study, the study's purpose, research questions, hypotheses, and significance of the study. Chapter 1 also included an overview of the theoretical foundation, operational definitions, assumptions, limitations, scope, and delimitations of the study. A review of the existing literature and a more thorough explanation of the theoretical framework and variables follows in Chapter 2.

Chapter 2: Literature Review

Telecommunicators across the country face a higher-than-national average turnover rate despite the ever-increasing demand for their services (U.S. Department of Transportation, 2017). Although turnover is a normal part of any organization, higher-than-expected rates can quickly result in profit losses, low morale among remaining employees, decreased efficiency due to the loss of knowledge, and increased costs associated with recruiting and training new employees (Balogun et al., 2020; Scanlan & Still, 2019). For emergency dispatchers, the resulting turnover outcomes include staff shortages, inexperienced dispatchers, mandatory overtime, and lengthier wait times for callers, resulting in loss of life or limb and burnout for remaining employees. On a larger scale, these issues can all have high societal costs, including increased medical bills, losses associated with employees calling out sick, and decreased quality of emergency services to the public (Meischke et al., 2018).

Researchers have found that increased job satisfaction levels resulted in lower turnover intention among employees (Bakkal et al., 2019; Balogun et al., 2020; Bride & Kintzle, 2011; Lee et al., 2017; Scanlan & Still, 2019; Saeed et al., 2014). PTSD causes negative alterations in cognitions and mood associated with the traumatic event, resulting in decreased satisfaction with work if the traumatic event is related to the workplace (American Psychiatric Association, 2013; Roden-Foreman et al., 2017). Furthermore, increased STS levels are related to decreased job satisfaction and lower occupational commitment (Bride & Kintzle, 2011).

Despite research indicating the effect of trauma on turnover intention, to date, there has been little investigation into how an emergency dispatcher's exposure to trauma may impact their job satisfaction levels and, subsequently, their turnover intention. This quantitative study aimed to investigate the impact trauma may have on the relationship between job satisfaction levels and turnover intention among emergency dispatchers in the United States. For this study, the predictor variable was job satisfaction rates measured by the JSS, and the criterion variable was turnover intention. Trauma served as the moderator as there is a documented correlation between job satisfaction and turnover intention. This study may inform future research on telecommunicators and support political efforts to reclassify dispatching as a protective occupation in the SOC. This study can also illuminate the impact of trauma on emergency dispatchers, which may be used to identify support measures to reduce turnover rates at PSAPs, such as health and wellness programs. This chapter will discuss the theoretical foundation for the study and existing literature on job satisfaction, trauma, and turnover intention.

Literature Search Strategy

The literature search strategy for this study involved using the Walden University Library databases, Google Books, and Google Scholar made available through Walden University. The only external search engine used for this study was Google. Specific databases accessed included BioMed Central, Bureau of Justice Statistics, Criminal Justice Database, Emerald Insight, Health and Psychosocial Instruments, Homeland Security digital Library, U.S. Bureau of Labor Statistics, U.S. Department of Health and

Human Services, SAGE Journals, SAGE Knowledge, ScienceDirect, ScholarWorks, The National Science Foundation, Project MUSE, ProQuest Central, PubMed, PsycTESTS, PsycARTICLES, PsycBOOKS, PsycEXTRA, PsycINFO, and Walden University Dissertations and Theses. Additionally, the American Psychiatric Association's DSM-5 was heavily referenced during this study. This study's key search terms included *posttraumatic stress disorder, secondary traumatic stress, emergency dispatchers, job satisfaction, turnover intention, burnout, vicarious trauma, job performance, the cognitive model of PTSD, constructivist self-development theory, contingent rewards*, and *occupational commitment*. A more detailed list can be found in Appendix A.

For most of the study, literature was restricted to full-text peer-reviewed sources published between 2017 and 2020 to ensure relevance. However, some resources, such as government-issued statistical databases, specific measurement tools, published textbooks, and current websites, fell outside these constraints. For example, Spector's (1994) JSS was selected due to proven validity and reliability despite the publication date. Additionally, little existing research was available within the constraints for some topics (i.e., emergency dispatchers and STS). Search parameters were expanded to include earlier works and additional search terms to facilitate issues with publication dates. Other pieces were identified through the reference lists on peer-reviewed sources consulted for this study once the new reference's peer-reviewed status was verified.

I only found a few studies in which researchers examined whether emergency dispatchers experienced PTSD at rates similar to those physically on the scene of a

traumatic event. For example, Klimeley et al. (2018) investigated the prevalence of PTSD in police, firefighters, and emergency dispatchers by reviewing 524 publications. They found that firefighters experienced PTSD at 17–22%, law enforcement at a rate of 7–19%, and dispatchers at a rate of 13.34–15.56%. Pierce and Lilly (2012) and Lilly and Pierce (2013) also conducted research specifically on PTSD among emergency dispatchers, using data from the types of 911 calls to investigate the types of traumatic events a dispatcher might encounter as well as depression in the population and peritraumatic distress and world assumptions. Further, I found a study that demonstrated raised stress levels in dispatchers. However, it focused exclusively on emergency medical dispatchers instead of those that work with fire, law enforcement, or a combination of services (Bedini et al., 2017). Finally, Steinkopf et al. (2018) conducted one of the most recent studies on emergency dispatchers, investigating stress and resiliency and finding that stress levels were average among the group. However, they did not compare rates among emergency dispatchers to the general public, nor did they investigate causal relationships between affect, physical health, and occupational stress.

Theoretical Foundation

This study relied on two theoretical frameworks: the cognitive model of PTSD proposed by Ehlers and Clark (2000) and the CSDT proposed by McCann et al. (1988) and later expanded on by McCann and Pearlman (1990). Both theoretical frameworks account for employees who develop PTSD (based on existing diagnostic criteria) and those who do not.

Cognitive Model of PTSD

The cognitive model of PTSD proposed by Ehlers and Clark (2000) states that PTSD becomes persistent when an individual has a distorted representation of the traumatic memory and its connection to autobiographical memories paired with an appraisal of the trauma that leads to the sense of a current and serious threat. The sense of a serious and current threat results from (a) excessively negative appraisals of the trauma or sequelae, (b) a disturbance of the autobiographical memory characterized by imperfect elaboration and contextualization, (c) robust associative memory, and (d) strong perceptual priming. In other words, individuals with chronic PTSD demonstrated appraisals of the trauma that involved highly personalized negative meanings. For example, an emergency dispatcher may believe that they are personally incompetent after being unable to convince a bystander to provide CPR to a person who is experiencing a heart attack.

The theory explains four reasons a person might involuntarily experience traumatic memories associated with a sense of current and severe threat (Ehlers & Clark, 2000). First, they may have lacked awareness of the self in the past and experienced sensations as if they were occurring in the present. Second, individuals experienced emotional responses triggered without recollection of the trauma itself. Third, people failed to access information from other memory that might be relevant. Finally, a variety of stimuli was found to trigger intrusive memories in a sensory way instead of something meaningful in nature (i.e., a sound, color, or smell).

Ehlers and Clark (2000) suggested three maladaptive behavioral strategies commonly employed to control the threat of danger or symptoms of PTSD, including directly producing the symptoms, preventing a change in the negative appraisals of the trauma, and preventing a modification in the nature of the trauma memory. Examples of these strategies include avoidance behaviors, hypervigilance, alcohol or drug use, numbing emotions, and ruminating about how the event could have been changed or prevented (American Psychiatric Association, 2013; Ehlers & Clark, 2000). These symptoms, along with avoidance behaviors, emotional regulation problems, and similar symptoms, are commonly associated with reduced job satisfaction, negative outlook, and poor workplace performance (American Psychiatric Association, 2013; Ehlers & Clark, 2000).

The theory can relate to the experience of emergency dispatchers. Trauma is generally characterized by difficulty retrieving information about the incident and a fragmented or disjointed recollection (Goodall et al., 2017), which is relevant for emergency dispatchers due to the nature of the work (Klimeley et al., 2018; Krakauer et al., 2020; Lilly & Pierce, 2013; Pierce & Lilly, 2012). Emergency dispatchers are often exposed to calls that lack visual or physical connections, often resulting in the need to use visualization that can leave residual memories of a caller’s emotional state (Adams et al., 2018). Furthermore, information about what happens after the call is terminated is absent. Dispatchers are not generally directly involved in medical procedures, law enforcement procedures, or firefighting procedures following the traumatic incident's initial phone

call. For example, a dispatcher may take a phone call for a motor vehicle collision where a caller describes the scene of a patient crushed inside a vehicle and unconscious. While the dispatcher must decide whether to keep the caller safely away from the scene or encourage them to wake the passenger up or free them from the vehicle, the call is terminated once first responders arrive. The dispatcher is left wondering how many patients were involved, whether they survived or perished, and other pertinent details surrounding the traumatic event.

Some organizations have implemented critical incident stress management programs to mitigate the effects of PTSD symptoms (Klimeley et al., 2018). There are several techniques and strategies used during critical incident stress management meetings. Many are focused on bringing all responders together to create a more accurate memory of the traumatic event. For example, following a suicide attempt in which a dispatcher was told the subject was still alive, an emergency medical responder may be able to share that the patient was actually not conscious at the time of the call and had perished quickly. Regardless of whether the new information brings comfort, it helps reduce the fragmented and disjointed memories Ehlers and Clark (2000) described. Building on their research, Ehlers and Clark (2008) noted that one of the most effective treatments for PTSD when the order of events is unclear is to write a narrative and reconstruct the traumatic event while linking new information that updates the meaning of the trauma while elaborating on the instance.

Nevertheless, overall research on the efficacy of critical incident stress

management programs has been mixed. Some studies suggested reduced depression, anger, and PTSD symptoms among briefed units, whereas others suggested no impact or even worsening symptoms (Klimeley et al., 2018). This is likely the result of being unable to account for the multitude of individual factors impacting each employee, paired with the theory that individuals with PTSD often view support from others as confirmation of an internal detriment (Ehlers & Clark, 2000; Goodall et al., 2017).

CSDT

The CSDT was founded on the premise that individuals construct their realities based on highly complex cognitive structures referred to as schemas used to interpret events (McCann & Pearlman, 1990). Schemas include a set of belief systems, assumptions, and expectations that increase in complexity throughout a person's life (McCann & Pearlman, 1990). McCann et al. (1988) identified five key domains that impact a person's response to trauma: needs in safety, trust, esteem, intimacy, and control.

The CSDT also states that exposure to stressful or traumatic events can interfere with a person's cognitive schemas positively or negatively, fundamentally disrupting their stability (McCann et al., 1988). The same event can impact people in significantly different ways. However, typically an experience is processed through the person's existing schema, becomes tied to specific emotions and thought processes, and is then incorporated into the schema to process future experiences (Miller et al., 2010).

Though changes associated with PTSD tend to have a rapid onset (i.e., following

a single traumatic event) and impact behavioral and cognitive constructs, the psychological adaptations related to schemas are developed over long periods and can be pervasive or even permanent. The inclusion of the CSDT in this study is intended to address the fact that not every person exposed to stress or trauma will develop a traumatic disorder. However, they will likely experience some changes to their schemas. For example, when considering emergency dispatchers, repeated exposure to traumatic domestic violence events may impact control, trust, and safety areas. In this way, dispatchers who have not developed PTSD based on the diagnostic criteria may still demonstrate symptomology associated with vicarious trauma.

Research Questions and Theoretical Foundation

There are six research questions outlined in the present study:

1. Does the education level of the emergency dispatcher predict the existence of PTSD based on the PCL-5 cutoff score of 31-33?
2. Does the education level of the emergency dispatcher predict the severity of PTSD symptoms based on the PCL-5?
3. Does PTSD moderate the relationship between job satisfaction and turnover intention?
4. Does vicarious trauma moderate the relationship between job satisfaction and turnover intention?
5. Is there a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers?

6. Do vicarious trauma and job satisfaction levels predict the existence of PTSD among emergency dispatchers?

The first two questions are designed to determine whether education level contributes to the presence or severity of PTSD based on the diagnostic criteria outlined in the PCL-5. These questions are intended to build on the existing theories. Regarding the cognitive model of PTSD, Research Questions 1 and 2 may help determine whether the fragmented or disjointed memories contribute to the development of PTSD. Regarding the CSDT, it may be possible to investigate the relationship between long-term exposure to traumatic experiences and schema changes.

Questions 3, 4, 5, and 6 were intended to investigate the relationships between the three variables further to determine whether PTSD or vicarious trauma significantly impacts job satisfaction levels and whether the two forms of trauma are related to one another. Question 5 was designed to understand better whether a relationship exists between a person's response to long-term exposure to changes in their schemas and acute traumatic events that trigger PTSD symptomology. Finally, Question 6 was created to investigate whether it is possible to identify a predictive relationship for PTSD based on a person's long-term schema changes, education level, and overall happiness with their position.

Literature Review Related to Key Variables and Concepts

Emergency Telecommunications

Before implementing the three-digit emergency number 9-1-1 in 1968, citizens were required to dial a traditional phone number to the nearest police station or fire department. Alternatively, they could call the operator and request to be connected. Officers and firefighters were responsible for answering these calls, but if there was nobody in the office, the call went unanswered (National Emergency Number Association, 2018). The first calls were sent to a particular phone in the police department. A dispatcher was charged with answering calls and providing responding units with information, much like a traditional phone operator (Gardett et al., 2013).

In the early 1970s, some discussion about training emergency dispatchers arose after a paramedic provided unplanned and unscripted prearrival instructions to the mother of a baby boy that was not breathing (Gardett et al., 2016; Zachariah & Pepe, 1995). The child's survival prompted a movement to provide prearrival instructions without formal protocols. Shortly afterward, Dr. Jeff Clawson began developing protocols for dispatchers to prevent EMS abuse and ensure proper training was provided (Gardett et al., 2016; Zachariah & Pepe, 1995). Since then, emergency dispatchers nationwide have provided support for callers and first-responders alike.

Modern telecommunicators typically use computer-aided dispatch software and rely on algorithms to determine the best course of action and type of response for any given situation (Gardett et al., 2016). They are tasked with gathering information about

the caller, the situation, the chief complaint, any hazards involved in the situation, and providing instruction and guidance to every caller. As Gardett et al. (2016) explained, the situation the emergency dispatchers "sees" can improve, exacerbate, or stabilize a patient before other responders arrive.

Emergency dispatchers are the first of the first responders responsible for "maintaining the cognitive and emotional resources to perform complex, multiple tasks and make precise decisions with fateful consequences under life/death time pressures while staying calm" (Baseman et al., 2018, *p*. 2). Still, they have consistently remained categorized as administrative professionals and thus seen as "less critical" in public safety (Baseman et al., 2018; Klimeley et al., 2018; Maguire et al., 2018; Riou et al., 2018). However, unlike their historical counterparts, modern emergency dispatchers work around the clock to handle various tasks ranging from data entry to fully coordinating operation activities for a multi-jurisdictional disaster relief effort (Adams et al., 2018).

Unlike traditional secretaries or telephone operators, modern emergency dispatchers are exposed to mental health crises, substance abuse issues, assaults, homicides, fires, and other disasters on a regular and recurrent basis. Still, the SOC classification paired with the Fair Labor Standards Act requires emergency dispatchers to comply with administrative personnel employment standards. These policies require emergency dispatchers to work a traditional 40-hour week despite facilities being staffed 24 hours per day. To meet these needs, the Association of Public Safety Communications Officials (2009) found that one supervisor made an additional $30,000 to $50,000

annually from overtime, and several employees took on as many as 20 volunteer overtime hours each week.

Staffing Crises

To understand the crisis surrounding emergency dispatch staffing levels, it is necessary to investigate current circumstances in centers across the United States. For example, in Marion County, Indiana, the Marion County Sheriff's Office had budgeted for 152 full-time dispatch positions but only had 126 filled at the time of the report (Segall, 2020). Additionally, due to the national COVID-19 pandemic, 23 dispatchers had resigned or retired, and 28 had to quarantine during the year (Segall, 2020). This significant staffing shortage resulted in 911 callers waiting on hold for as long as 6 minutes. However, the national standard is that 90% of all 911 calls be answered within 10 seconds. In one case, the delays in answering 911 calls resulted in an ambulance arriving 16 minutes after a call to 911 was initiated for a patient in atrial fibrillation, which caused a loss of oxygen to the brain (Segall, 2020)

Similar issues were reported by the Times of Northwest Indiana in Lake County, where the center is budgeted for 100 full-time dispatchers, but only 73 were cleared to work (Racke, 2019). An audit by the Berkeley, California City Auditor (2019) found that their dispatch center was short one full-time 911 dispatcher per shift, Luzerne County, Pennsylvania reported 21 telecommunicator vacancies (Learn-Andes, 2020), and Austin, Texas reported 28 vacancies (Rucker, 2020). Similar reports were made in Nashville, Tennessee, where the center was short 41 positions (Wallace, 2020), and Albany, New

York, where there were 16 vacancies (DeFeciani, 2020). Only one article indicated staffing levels had returned to normal in Trumbull County, Ohio. However, it was noted that overtime hours were still high because one employee was in quarantine, and seven others were new hires still being trained for the job (Fox, 2020). Each of these reports noted problems with answering 911 calls promptly, requiring full-time dispatchers to take on as many as 16 hours of overtime per week (Segall, 2020) or 300 hours per week center-wide (Berkely City Auditor, 2019), dissatisfaction with pay (Learn-Andes, 2020; Wallace, 2020), long training periods (Pickens, 2020), and low morale among employees (DeFeciani, 2020; Segall, 2020).

Job Satisfaction

Job satisfaction is one of the trickiest components of the present study. The phrase was initially coined by Hoppock (1935), who defined job satisfaction as an employee's subjective response to their working environment's psychological and physiological components. Since this initial definition, Fs have further developed and adapted Hoppock's understanding of the construct to create their descriptions. Each emphasizes job satisfaction's highly personalized and subjective nature while highlighting the importance of external influencing factors (Abuhashesh et al., 2019; de Oliveria et al., 2019; Spector, 1997; Vroom, 1964). The most inclusive definition, and the one that will be used for this study, was proposed by Spector (1997) and supported by Abuhashesh et al. (2019), de Oliviera et al. (2019), Fasbender et al. (2018), Lee et al. (2017), and Zito et al. (2018). This deceptively simple definition indicates that job satisfaction is an

employee's feelings about their job.

Measuring Job Satisfaction

With job satisfaction being defined as simply a person's feelings about their job, it is necessary to investigate how to measure the construct. It would not serve researchers well to merely ask an employee whether they are satisfied with a job, as each person has a unique set of criteria for measuring job satisfaction (Abuhashesh et al., 2019). For example, a person could be happy with pay and benefits but dissatisfied with working hours and stress levels.

Therefore, Spector (1997) identified nine core facets of job satisfaction that will be used for the present study. These include pay, promotion, supervision, benefits, contingent rewards, operating procedures, coworkers, nature of the work, and communication (Spector, 1997). Though initially developed in the late 1990s, these constructs have been reiterated by more recent research. Mueller and Kim (2008) suggested that specific aspects of job satisfaction included benefits, salary, position, growth opportunities, working environment, and employee relationships. Abuhashesh et al. (2019) suggested that elements include payment, working hours, schedule, benefits, stress levels, and flexibility. These modern constructs closely align with Spector's (1997) factors and support using his definitions, facets, and measurement tool, the JSS, for the present study despite the scale's development being more than 20 years old at the time of this research.

Pay, Bonuses, and Fringe Benefits

Many researchers agree that an employee's salary and benefits play an essential role in contributing to overall job satisfaction levels (Abuhashesh et al., 2019). For example, Lee, Robertson, and Kim (2020) noted that wages are essential for overall job satisfaction as employees require money to purchase basic needs such as food, shelter, and clothing. In addition to an employee's base wages, benefits like life insurance, retirement plans, paid time off, medical and disability coverage, paid vacation time, bonuses, and other compensations were found to have a positive impact on a worker's job satisfaction level (Abuhashesh et al., 2019; Lee et al., 2017; Wang & Seifert, 2017). Wang and Seifert (2017) suggested that wages' impact on an employee's job satisfaction is so significant that a reduction in pay may cause high-quality employees to perform more poorly or terminate their employment. However, according to Abuhashesh et al. (2019), Hamermesh (2001) found that salary increases had only temporary effects on employee satisfaction levels.

Supervision, Operating Procedures, Coworkers, and Communication

When taken together, immediate supervision, operating procedures, coworkers, and communication within the organization are all components of organizational culture, sometimes defined as a pattern of values, norms, beliefs, attitudes, and assumptions within a workplace (Mesfin et al., 2020). Organizational culture includes a few key elements: rewards and recognition, communication, history, behavioral norms, rules, and values (Abuhashesh et al., 2019; Lopez-Martin & Topa, 2019; Mesfin et al., 2020).

Abuahashesh et al. (2019) noted that organizational culture could positively or negatively impact job satisfaction levels. In general, the more encouraging the corporate culture, the greater the job satisfaction and commitment from employees. Likewise, cultures in which employees do not feel empowered or involved tend to have low job satisfaction and performance levels (Abuhashesh et al., 2019; Bowling et al., 2018; Mesfin et al., 2020). Potential issues that can reduce job satisfaction include workplace harassment, bullying, gossip, unfriendly competition between employees, excessive absences, and employment discrimination (Abate et al., 2018).

Regardless, Mesfin et al. (2020) noted the importance of individual cultural differences. The most crucial consideration for increased job satisfaction regarding organizational culture is a proper alignment with an employee's expectations and values. Abuhashesh et al. (2019) supported this theory by stating that the best culture is when employees hold similar ethical values, form a cohesive team, communicate well, know their responsibilities, and understand assessment procedures.

Contingent Rewards, Promotional Opportunities, and Nature of the Work

Spector (1994) described contingent rewards as appreciation, recognition, and other rewards for a job well done. These rewards, opportunities for advancement within the organization, and the work's general nature contribute to an employee's meaning and purpose, increasing job satisfaction levels (Rothausen & Henderson, 2019). Abuhashesh et al. (2019) explained that training and development improve employee confidence levels and enhance the general attitude toward the organization, decrease employee

conflict, improve innovation, increase teamwork, and improve overall organizational culture. Development can lead to promotional opportunities that reduce boredom from repeating the same daily tasks for many years, providing the employee with higher status, better wages, and recognition for hard work and loyalty (Abuhashesh et al., 2019; de Oliveira et al., 2019).

Considering Alternative Measurements

Another scale, the Facet Satisfaction Scale (FSS) (Beehr et al., 2006), was considered for this study due to its potential for being more accurate when measuring current job satisfaction rates. The FSS is notably shorter than the JSS (25 items versus 36) and investigates an employee's subjective satisfaction level on five aspects: work itself, supervision, coworkers, pay, and promotional opportunities (Beehr et al., 2006). Each element is measured by five items rated on a seven-point Likert scale ranging from 1 (strongly disagree) to 7 (strongly agree), with a few questions being reverse-worded.

Bowling et al. (2018) investigated the measurement qualities of the FSS and noted that it has two potential strengths compared to other scales used for job satisfaction levels. First, the FSS has the potential to measure affective content more effectively by using language like "satisfied," "pleased," and "content," while other measures emphasize the cognitive aspect. Bowling et al. (2018) noted that the JSS appeared to assess a mixture of cognitive and affective components and explained that some researchers might prefer to evaluate the two aspects separately.

The second potential strength identified by Bowling et al. (2018) was that each

subscale consisted of similar items, which may allow for a more direct comparison of results for the various facets measured by the FSS. The similarities facilitated organizational functionality diagnoses as the confounds associated with comparing affectively worded items with cognitively-framed items were minimized (Bowling et al., 2018). While Bowling et al. (2018) found the FSS an adequate measure of job satisfaction levels using confirmatory factor analysis, the researchers also noted limited evidence regarding the scale's reliability and validity.

Despite being a valid and reliable measure of job satisfaction, the FSS has significant limitations. First, the FSS has not been used as widely as the JSS. As a result, Spector (2020) was able to provide information regarding norms for sample populations, including corrections, education, higher education, manufacturing, medical, mental health, nurses, police, retail, social services, private sector, public sector, the nonprofit sector, and totals in the United States. Additionally, norms are available for non-U.S. populations, including Canada and the United Kingdom, though Spector (2020) notes the non-U.S. samples are minimal. Furthermore, individual researchers have effectively translated the JSS to more than 30 languages and made it available at no cost to academic researchers through Spector's (2020) personal website.

Job Satisfaction and Performance

An et al. (2020) explained that job performance refers to an employee's ability to complete their assigned task-related behaviors. When an employee completes tasks, overall quality and productivity are significantly improved for the organization (An et al.,

2020; Bakkal et al., 2019; Mira et al., 2019; Stefurak et al., 2020). As Abuhashesh et al. (2019) noted, employees who are more satisfied with their employment tend to complete tasks more effectively, have greater skill and expertise, and maintain jobs for more extended periods. As a result, researchers have long shown interest in the relationship between an employee's job satisfaction level and performance. Mira et al. (2019) noted that the complexity of job satisfaction has made it a challenging construct for employers to improve globally within the organization but explained that there is a clear positive relationship between the two constructs.

Wolomasi et al. (2019) investigated the relationship between job satisfaction and job performance among elementary teachers and found a statistically significant positive relationship between job satisfaction and performance. In their study, Wolomasi et al. (2019) discovered that when teachers felt satisfied with their work, they were more likely to produce more than required. Similar outcomes were found by Stefurak et al. (2020) in their study of emergency medical service personnel, An et al. (2020) in their research of seafarers, and Abuhashesh et al. (2019) in their research of Jordanian industrial sector employees.

Job Satisfaction and Turnover Intention

It cannot be stated that employees will leave their employment position simply because they are unhappy (Bothma & Roodt, 2013). However, it can be said that job satisfaction has a significantly negative relationship with turnover intention (Bakkal et al.,2019; Balogun, Andel, & Smith, 2020; Saeed et al., 2014; Zhang et al., 2020). In other

words, employees with higher levels of job satisfaction are less likely to report turnover intention. More on turnover intention will be discussed in this chapter.

As Bothma and Roodt (2013) noted, some employees cannot leave their jobs due to contextual factors like employability and the current labor market conditions. Still, turnover intention is a significant predictor of actual turnover, which can wreak havoc on an organization due to costs, impaired organizational function, delayed service delivery, administrative issues, increased costs for hiring new employees, time spent training new workers, and overall morale (Balogun et al., 2020; Bothma & Roodt, 2013; Bakkal et al., 2019; Saeed et al., 2014; Zhang et al., 2020)

Turnover Intention

Though seemingly self-explanatory, turnover intention is an employee's conscious and deliberate intention to leave the organization (Bothma & Roodt, 2013). Assessing turnover intention is one of the most reliable ways to measure and investigate the likelihood that an employee will soon leave their position (Wubetie et al., 2020). Bothma and Roodt (2013) cited previous studies that found that turnover intention was a reliable predictor of an employee's actual leaving behavior. All organizations face turnover, and while it is not always negative, it does become problematic when turnover rates become too high. An abundance of turnover rates typically indicates dissatisfaction with the organization or employer and generally results in staff shortages, increased need for recruitment, increased training costs, and reduced overall morale among remaining employees (Bakkal et al., 2019; Balogun et al., 2020; Bothma & Roodt, 2013; Scanlan &

Still, 2019; Zhang et al., 2020). Depending on the situation, turnover can be voluntary or involuntary, functional, or dysfunctional, but an employee-employer relationship ends in every scenario.

One way to measure potential employee turnover loss is by investigating turnover intention. Turnover intention is described as the extent to which an employee plans to leave the organization (Bothma & Roodt, 2013; Scanlan & Still, 2019). Furthermore, Saeed et al. (2014) noted that turnover intention is significantly and negatively correlated to job satisfaction. In other words, as job satisfaction rates increase, turnover intention decreases.

Trauma

This study will investigate two types of trauma: PTSD and vicarious trauma. STS will also be discussed. Before the development of the DSM-5, STS was not considered a clinical diagnosis (Rowden-Foreman et al., 2017). However, Criterion A4 in the DSM-5 (American Psychiatric Association, 2013) makes STS a form of PTSD instead of a unique condition for individuals with repeated or extreme exposure to aversive details of traumatic events, not through electronic media unless the exposure is work-related. The pervasiveness of the term STS makes it essential to address the construct on an individual level in this study, but STS will be referred to as PTSD for the present study.

Emergency dispatchers typically work from remote positions and gather necessary information via telephone or radio communications (Golding et al., 2017; Kindermann et al., 2020; Krakauer, Stelnicki, & Carleton, 2020; Meischke et al., 2018;

Pierce & Lilly, 2012; Scully, 2011; Shakespeare-Finch et al., 2015). Therefore, it would be reasonable to suggest that the most likely exposure will come from experiencing repeated or extreme exposure to aversive details of a traumatic event as the caller relays the situation. Examples of traumatic events dispatchers are frequently exposed to include death or severe injury of police personnel, suicide, mass casualty incidents, the passing of children, and speaking to individuals in extreme crises (Boland et al., 2018; Steinkopf, 2020).

It is essential to note that dispatchers may also be exposed to trauma through other methods. Dispatchers directly experience trauma when callers commit acts of violence to themselves or others while a phone line is open with the telecommunicator. Because emergency dispatchers may live and work in the same community, they are not immune from learning that a traumatic event occurred to a family member or friend and may be the person to take the call. Finally, in-person exposure may be a concern for specially trained tactical dispatchers called on to respond directly to the scene of a situation to set up a mobile command post and support communication for a critical incident.

Though it could be argued that dispatchers are safely away from the trauma scene, as Steinkopf et al. (2020) noted, prior research has determined that direct exposure to trauma is not required for the development of PTSD. Interestingly, research suggests that dispatchers may be at an increased risk of developing a trauma disorder due to their limited control in emergencies, decreasing the internal locus of control (Carleton et al., 2018; Klimeley et al., 2018; Pierce & Lilly, 2012; Steinkopf et al., 2020).

PTSD

While psychological or emotional trauma can take many forms, the two most relevant to emergency dispatchers' roles will be investigated for this study. The first is PTSD, a psychiatric disorder outlined in the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), published by the American Psychiatric Association (American Psychiatric Association, 2013). For a clinical diagnosis of PTSD, a person must have the following criteria: exposure to actual or threatened death, severe injury, or sexual violence via direct experience, witnessing the event in person, learning that trauma occurred to a close family member or friend, or experiencing repeated or extreme exposure to aversive details of a traumatic event (including through electronic media, television, movies, or pictures if related to work) (American Psychiatric Association, 2013). Suppose one of the conditions of exposure is met. In that case, a clinical diagnosis of PTSD also requires the presence of one or more intrusion symptoms, persistent avoidance of stimuli associated with the traumatic event following its occurrence, negative cognitive alterations or mood, and marked alterations in arousal or reactivity (American Psychiatric Association, 2013). Furthermore, the duration of symptoms must exceed one month, cause distress or impairment in social, occupational, or other functioning areas, and not be attributable to substance use or another medical condition.

STS

STS results from continually hearing difficulty or upsetting information and an overwhelming desire to help the individual experience the trauma (Branson, 2019; Bride

& Kintzle, 2012). Kindermann et al. (2020) explained that Figley coined the term STS in 1995 to describe a condition that met all criteria for diagnosing PTSD except for direct exposure to the trauma. Before the publication the DSM-5 (American Psychiatric Association, 2013), STS was not considered a clinical diagnosis. Additional research leads to the inclusion of criterion A4 under the diagnostic criteria for PTSD, making it a form of PTSD instead of a unique condition (American Psychiatric Association, 2013). Criterion A4 states that individuals may qualify for a diagnosis of PTSD if they experience repeated or extreme exposure to aversive details of the traumatic events. A special note states that this criterion applies to television, electronic media, movies, or pictures if the exposure is work-related.

It is more critical to differentiate STS/PTSD from vicarious trauma, discussed below. STS and PTSD consist of established symptomology in intrusion, avoidance, and hyperarousal. However, vicarious trauma refers to the changes an individual experiences in their cognitive schemas of self, others, and the world. While STS/PTSD may have a rapid onset, vicarious trauma is a slow process of change over time (Branson, 2019; Finklestein et al., 2015; Foreman, 2018; Kindermann et al., 2020).

Vicarious Trauma

Vicarious trauma is a form of indirect trauma that occurs when individuals, most commonly in a counselor role, interact with clients who have been traumatized (Benuto et al., 2018). This term was initially coined to describe a condition experienced by therapists in the early 1990s but has since been used to describe similar situations for other helping

professions as researchers recognize that other employees are exposed to past client traumas (Benuto et al., 2018; Foreman, 2018; Newman et al., 2019). For those with vicarious trauma, this interaction results in a specific set of negative changes that may be physical, neurological, emotional, mental, cognitive, or sexual (Branson, 2019). These changes may disrupt the person's cognitive schemas, beliefs, expectations, or assumptions about themselves and others (Branson, 2019; Foreman, 2018; Newman et al., 2019). As Newman et al. (2019) noted, these changes may initially result in feeling incompetent or powerless, distrustful, unsafe, vulnerable, disconnected from others, or generally pessimistic; however, there can be more serious outcomes when left untreated.

Branson (2019) explained that, like primary traumas, the symptoms associated with secondary trauma forms could be physical, neurological, emotional, mental, cognitive, or sexual and closely resemble those outlined by the APA in the DSM-5. Specifically, symptoms associated with vicarious trauma include unwanted or intrusive thoughts, avoidance behaviors, negative coping skills, increased absenteeism from work, hyperarousal, loss of motivation and work ethic, reduced longevity in the field, stress-induced medical conditions, poor decision-making, apathy, and a pessimistic view of the world (Branson, 2019; Foreman, 2018; Newman et al., 2019).

Summary

The existing literature has clearly defined job satisfaction's role in an employee's performance, attendance, relationships, knowledge and skills, and longevity (Abuhashesh et al., 2019; Bowling et al., 2017; Wolomasi et al., 2019). Furthermore, it is well

documented that job satisfaction is essential in reducing turnover rates, resulting in loss of productivity, profit losses, decreased efficiency, and increased costs (Balogun et al., 2020; Scanlan & Still, 2019). Existing literature also explained that the best way to measure employee turnover is to investigate turnover intention (Wubetie et al., 2020). However, what is still unknown is whether trauma serves as a moderating variable between the two constructs when looking at a position like that of an emergency dispatcher.

Overall, very little literature exists on the position of emergency dispatcher. While some studies investigate stress (Bedini et al., 2017) and the psychological well-being of public safety telecommunicators (Golding et al., 2017; Shakespeare-Finch et al., 2015), virtually no studies investigate whether trauma plays a role in a dispatcher's overall job satisfaction or turnover intention. What is known is that there is potential for emergency dispatchers to encounter traumatic experiences and develop trauma disorders (Bedini et al., 2017; Golding et al., 2017; Klimeley et al., 2018; Lilly & Pierce, 2013; Pierce & Lilly, 2012). Furthermore, Klimeley et al. (2018) established that the prevalence of PTSD was similar for law enforcement, firefighters, and dispatchers and found that perceived lower-ranking, limited control over the situation, and decreased organizational support were risk factors for dispatchers.

Historically, emergency dispatchers have been viewed as clerical personnel with responsibilities akin to a traditional secretary. As a result, much of the existing research into emergency services has excluded dispatchers in favor of medical, fire, or law

enforcement personnel due to their physical presence at the scene of a crisis (Dunn et al., 2017; Marmar et al., 2006; Hartley et al. 2013). However, as the United States passes the 50th anniversary of the creation of 911, politicians and researchers are finally starting to investigate the significant impact emergency dispatches can have on the overall outcome of a crisis. This study will help identify one of the critical causes of turnover intention among emergency dispatch centers across the United States or show that trauma has minimal impact and instead build the academic foundation for determining what other factors contribute to the issue.

Chapter 3: Research Method

This quantitative study aimed to investigate the impact trauma may have on the relationship between job satisfaction levels and turnover intention among emergency dispatchers in the United States. This study can inform future research on telecommunicators, support political efforts to reclassify dispatching as a protective occupation in the SOC, and help identify support measures such as health and wellness programs. This chapter provides an overview of the research design and methodology used to collect and analyze the research question.

Research Design and Rationale

This study involved a quantitative nonexperimental research methodology in examining the influence PTSD and vicarious trauma have on job satisfaction levels and turnover intention among emergency dispatchers in the United States. I sought to determine to what extent emergency dispatchers experience PTSD or vicarious trauma to further contribute to the existing knowledge base on the subject. This study was correlational with a moderator analysis in which the moderator variable is trauma as measured by the PCL-5 (Weathers et al., 2013) and the VTS (Vrklevski & Franklin, 2008). The predictor variable was job satisfaction as measured by the JSS (Spector, 1994), and the criterion variable was turnover intention as measured by the TIS-6 (Roodt, 2004). The moderator variables were PTSD measured by the PCL-5 (Weather et al., 2013) and vicarious trauma measured by the VTS (Vrklevski & Franklin, 2011).

Surveys were chosen for this study as they provide a quantitative description of

trends, attitudes, or opinions of a sample population so the researcher can make generalizations about the population (Creswell, 2009). Data for this study were cross-sectional as opposed to longitudinal. Responses based on participant experiences within a specific time frame are outlined within each survey tool (Creswell, 2009). Self-report surveys were the best option for this study based on the nature of the variables. Data collection involved an online survey using the existing instruments to reach the geographically dispersed population.

Methodology

Population

The population for this study was emergency telecommunicators over 18 working in the United States at primary or secondary PSAPs. Participants were employed to answer emergency and non-emergency calls for services and dispatching units in response to these calls. Participants should have completed training and be able to operate fully independently. Qualified participants should provide services for one or more of the following: firefighters, law enforcement, or emergency medical personnel.

Sampling and Sampling Procedures

Though a simple random sampling procedure would provide the most generalizable results for this study, the method does not identify the correct population group, is not cost-effective, and is unrealistic. Therefore, non-probability sampling methods were used for this study. Specifically, convenience sampling was used to identify nonrandom members of the population that are qualified to participate in the

survey, are accessible, are willing to participate, and are available at the study time (Etikan et al., 2016). The convenience sample was restricted to telecommunicators with access to an online-based survey within the United States for this study. Because of convenience sampling, the research will be less generalizable and may be inadvertently biased as the sample population will not represent the larger group (Elfil & Negida, 2017).

I employed a multistage sampling technique to increase the generalizability of this study's results. The population was divided into geographically diverse clusters (Groves et al., 2009). Under the U.S. Department of Justice, the Federal Bureau of Investigation (FBI) identified four regions for uniform crime reporting in the United States used for this purpose (U.S. Department of Justice, 2017). These regions include the Northeastern States, Midwestern States, Southern States, and Western States, as well as the subregions New England, Middle Atlantic, East North Central, West North Central, South Atlantic, East South Central, West South Central, Mountain, and Pacific (U.S. Department of Justice, 2017).

G*Power version 3.1.9.7 (Erdfelder et al., 2007) was used to conduct a power analysis for this study. With a medium effect size of $f^2 = 0.15$, a significance level of $\alpha = 0.05$, a power level of 0.95, and a single predictor, this study's minimum required sample size is 89 cases. I did not employ stratification.

Procedures for Recruitment, Participation, and Data Collection

After Walden University's Institutional Review Board (IRB) approval (approval

no. 05-13-21-0554231), I contacted each region between five and 10 PSAPs to solicit participation voluntarily. These agencies were selected from national databases of a national directory of tribal, federal, state, county, and municipal law enforcement administrations. These directories include the 2020 National Directory of Law Enforcement Administrators (37,000 listings), the National Directory of Public Safety Answering Points (5,500 listings), the 2020 National Directory of Fire Chiefs and EMS Administrators (36,000 listings), and the National Directory of County Emergency Management Agencies (3,700 listings; National Public Safety Information Bureau, 2020). Additionally, social media may be used to recruit voluntary participants or contact administrators for PSAPs.

Once agencies were selected, representatives were contacted via email, telephone, or social media websites like LinkedIn or Facebook to determine their willingness to participate and distribute recruitment material. Initial contact included an overview of the study paired with inclusion criteria. An alternative agency was selected if the agency representatives were unwilling to participate. Initial contact included information about the study's purpose, participant eligibility, and the voluntary and confidential nature of the study. Furthermore, I included my personal contact information, informed consent information, and a link to the online survey once it was established. The initial data collection period began at six weeks, with additional outreach following this period until the sample size was met. The total number of police, fire, and ambulance dispatchers in the United States in 2019 was 98,300 (Bureau of Labor Statistics, 2018).

Participants were provided with a link to an online survey that included screening questions intended to determine their age and education level. Information provided on the study, conducted through SurveyMonkey, was moved to a password-protected computer accessible only by me. Participants were informed of all risks and benefits involved in participation, and any identifying information will only be available to me and the chair. No identifying information is attached to the data. Participants were also informed that there is a rare possibility that they would experience distress due to the survey. Phone numbers for the crisis hotline were provided with other available resources. Benefits of participation include enhanced scientific knowledge of how trauma impacts telecommunicators. Participants indicated that they had read the informed consent and agreed to continue before moving forward with the survey.

Instrumentation and Operationalization of Constructs

The predictor variable (job satisfaction), moderator variables (PTSD and vicarious trauma), and the criterion variable (turnover intention) were measured using standardized instruments that are both valid and reliable when used for their respective constructs.

JSS

Job satisfaction is influenced by many factors that vary from person to person. It has been most concisely described as how people feel about their job (Abuhashesh et al., 2018). Existing studies consistently show that job satisfaction is directly related to increased employee performance, productivity, and reduced turnover intention (Lee et al., 2017; Mira et al., 2019). For this study, job satisfaction was measured by the JSS

(Spector, 1994). The JSS was initially developed by Spector (1994) to determine the extent to which a participant likes their job. The instrument is a self-administered survey consisting of 36 questions. A specific item on this tool is, “I sometimes feel my job is meaningless.” Participants are asked to rate these items on a subjective 6-point Likert scale ranging from 1 (*Disagree very much*) to 6 (*Agree very much*). Each item provides ordinal data. Although it has some limitations, including overall length, the JSS has demonstrated high internal consistency ranging from $\alpha = .60$ to .91 (Spector, 1994). Test-retest reliability ranged from .37 to .74 over 18 months. Spector also reported a high validity for the JSS with scores ranging from .61 to .80. The JSS has been successfully used on multiple employee populations in the United States.

When using the JSS, negatively worded items must be reverse scored before summation. These include items 2, 4, 6, 8, 10, 12, 14, 16, 18, 19, 21, 23, 24, 26, 29, 31, 32, 34, and 36 (Spector, 1994). A composite score is calculated by summing the scores for each item. Scores can also be calculated for each of the nine facet subscales. For subscales, a score of 4 to 12 indicates dissatisfaction, 16–24 indicates satisfaction, and 12–16 is ambivalent. For the composite score, 36–108 is dissatisfied, 114–216 is satisfied, and 108–144 is ambivalent (Spector, 1994).

PCL-5

For this study, PTSD symptoms were measured by the PCL-5 without Criterion A (a brief narrative assessment of the traumatic incident) to prevent additional emotional or psychological distress caused by being asked to recall the trauma. The PCL-5 is a self-

report measure consisting of 20 items developed to assess the presence and severity of PTSD symptoms using the criteria outlined in the DSM-5 (American Psychiatric Association, 2013). The PCL-5 was initially created by the Veterans Integrated Service Network's 4 Mental Illness Research, Education, and Clinical Center, collaborating with the National Center for PTSD.

A specific item listed in the PCL-5 is, "In the past month, how much were you bothered by blaming yourself or someone else for the stressful experience or what happened after it?" Participants are asked to rate each item on a 5-point Likert scale ranging from 0 (*Not at all*) to 4 (*Extremely*). This scale provides ordinal data for the study. The PCL-5 can be used as a diagnostic aid since an overall score of more than 31–33 suggests the likely presence of PTSD. Additionally, therapists can utilize the PCL-5 by treating each item rated at 2 (*Moderately*) or higher and help determine the severity of PTSD using the overall total score. Blevins et al. (2015) found the PCL-5 exhibited strong internal consistency ($\alpha = .94$), test-retest reliability ($r = .82$), convergent (rs = .74 to .85) and discriminant (rs =.31 to .60) validity (*p*. 489).

A composite score can be calculated by summing the score for each item on the measure. Cluster severity scores can be obtained by adding items within each cluster. For this method, Cluster B includes Items 1 through 5, Cluster C contains Items 6 and 7, Cluster D includes Items 8 through 14, and Cluster E includes items 15 through 20. A score above 31–33 indicates the probable presence of PTSD based on diagnostic criteria and reported symptoms. Higher scores indicate that symptoms are more severe, whereas

lower scores indicate symptoms are less severe or not present. An additional dummy-coded value of 0 will represent scores less than 31 to mark the unlikely presence of PTSD based on the recommended cutoff for the PCL-5. A value of 1 was assigned for scores 31 or greater to reveal the probable existence of PTSD.

VTS

The VTS published by Vrklevski et al. (2008) is a self-administered survey consisting of eight questions rated on a 7-point Likert scale ranging from 1 (*Strongly disagree*) to 7 (*Strongly agree*). On this scale, a typical item is, "My job involves exposure to distressing material and experiences." The scale was initially validated using a sample of criminal lawyers but has since been evaluated using multiple populations, including social workers and victim advocates (Benuto et al., 2018). Per Benuto et al. (2018), the overall internal consistency value for the VTS ranged from $\alpha = .77$ to .83, indicating that it is highly reliable. Though validity was supported in this study, a precise measurement was not provided.

A composite score is calculated by summing the score for each item on the VTS. Composite scores less than 28 indicate low vicarious trauma, whereas those greater than 43 indicate high vicarious trauma. Scores between 28 and 43 suggest moderate vicarious trauma (Newman et al., 2019).

TIS-6

The TIS-6 is a shortened version of the original TIS published by Roodt (2004). The original TIS consisted of 15 items, while the TIS-6 consisted of 6. A typical item on

the TIS-6 is, “How satisfying is your job in fulfilling your personal needs?” Participants are asked to rate each item on a 5-point Likert scale from 1 to 5. The Likert item ratings are unique to each question, with some items being reverse scored. Bothma and Roodt (2013) found that the TIS-6 could measure turnover intentions with high reliability at $\alpha = .80$ and distinguish between employees who left and those who stayed. Validity was also confirmed in this study for the TIS-6.

The composite score is calculated following the reverse scoring of labeled items. A composite score can then be calculated by summing the score of each item. Higher scores indicate that a person has a higher turnover intention, while lower scores indicate a lower turnover intention.

- Level of measurement: Ordinal
- Number of items: 6
- Scale for each item: 1-5
- The total possible range of scores: 6-30

Data Analysis Plan

The proposed study will examine potential correlation and moderation effects among multiple variables. Specifically, this study will investigate whether there is a correlation between a dispatcher’s education level and the existence and severity of PTSD. This study also investigates whether vicarious trauma, education level, and job satisfaction rates are predictors for PTSD among telecommunicators. Finally, this study aims to determine whether a relationship exists between vicarious trauma and PTSD for

respondents. This study's predictor variables are job satisfaction as measured by the JSS and education level. This study's criterion variable is turnover intention as measured by the TIS-6, and the moderator variables are PTSD and vicarious trauma as measured by the VTS. Demographic variables will be examined using regression analyses to determine possible covariates. These include gender, race, age, education level, income level, relationship status, and religious affiliation.

All data will be analyzed using IBM Statistical Program for Social Science (SPSS) version 27 provided by Walden University at no cost for this study. Additionally, Hayes' (2020) PROCESS macro add-on version 3.5 for SPSS will be used to test for moderation. Data will be checked for errors using frequency distribution in SPSS. Any values outside the minimum or maximum allotted values for each variable will be identified, corrected, or removed. For example, on the PCL-5, scores can range from 0 to 80. Anything below 0 or above 80 will need to be reviewed. Missing values will also be identified using frequency analysis. SPSS offers the option to replace missing values with the series mean. Cronbach's alpha will measure questionnaire internal reliability for each of the four scales (JSS, TIS-6, PCL-5, and VTS). Data will be analyzed using descriptive statistics, Pearson's coefficient correlation analysis, Spearman's correlation, and regression analysis. Data will be checked for linearity and normality through a visual examination of scatterplots. Research questions and associated hypotheses are presented below.

Research Questions and Hypotheses

The following research questions are based on the potential relationship between the symptoms of PTSD, vicarious trauma, job satisfaction, turnover intention, telecommunicator age, and education level. The hypotheses have been constructed using the research questions as a guide, and the testing instruments include the PCL-5, VTS, TIS-6, and the JSS.

Research Question 1: Does education level predict the existence of PTSD based on the PCL-5 cutoff score of 31-33?

$H_0$1: Education level does not predict the existence of PTSD based on the PCL-5 cutoff score of 31-33.

H_a1: Education level does predict the existence of PTSD based on the PCL-5 cutoff score of 31

Research Question 2: Does education level predict the severity of PTSD symptoms based on the PCL-5?

$H_0$2: Education level does not predict the severity of PTSD symptoms based on the PCL-5.

H_a2: Education level does predict the severity of PTSD symptoms based on the PCL-5.

Research Question 3: Does PTSD moderate the relationship between job satisfaction and turnover intention?

$H_0$3: PTSD does not moderate the relationship between job satisfaction and

turnover intention among dispatchers.

H_a3: PTSD moderates the relationship between job satisfaction and turnover intention among dispatchers.

Research Question 4: Does vicarious trauma moderate the relationship between job satisfaction and turnover intention?

H_04: Vicarious trauma does not moderate the relationship between job satisfaction and turnover intention among dispatchers.

H_a4: Vicarious trauma moderates the relationship between job satisfaction and turnover intention among dispatchers.

Research Question 5: Is there a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers?

H_05: There is a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers.

H_a5: There is no relationship between vicarious trauma and PTSD symptoms among emergency dispatchers.

Research Question 6: Do vicarious trauma and job satisfaction levels predict the existence of PTSD among emergency dispatchers?

H_{06}: Vicarious trauma and job satisfaction levels do not predict the existence of PTSD among emergency dispatchers.

H_a6: Vicarious trauma and job satisfaction levels do not predict the existence of PTSD among emergency dispatchers.

For Research Question 1, a chi-square crosstabulation was conducted to estimate the likelihood that PTSD is present given the employee's education level. For Research Question 2, to ensure participants with sub-threshold or partial PTSD are not excluded from this study, the severity or overall composite scores was evaluated in addition to the possible existence of PTSD. A one-way ANOVA will be used to assess this relationship.

Multiple regression analysis was employed for Research Questions 3 and 4 to investigate the potential moderating relationships between job satisfaction, PTSD or vicarious trauma, and turnover intention. Research Questions 3 and 4 were grouped together due to their similarities; however, it should be noted here that vicarious trauma and PTSD are unique constructs despite sharing many symptoms (Branson, 2019; Finklestein et al., 2015; Foreman, 2018). The potential effects of PTSD on the relationship between job satisfaction and turnover intention could be unique from vicarious trauma's possible effects on these variables. For example, an emergency dispatcher with PTSD might be experiencing severe avoidance symptoms that result in a desire to leave the position despite being relatively satisfied. Alternatively, an emergency dispatcher with vicarious trauma may be increasingly unsatisfied with the job due to increased cynicism toward clientele (Branson, 2019; Foreman, 2018) but have little intent to leave the position. While this research takes the approach that vicarious trauma and PTSD are unique, it should be noted that some literature suggests that symptoms of the two conditions are the same (Finklestein et al., 2015).

For Research Question 5, Regression analysis was used to explore the potential

relationship. Although vicarious trauma and PTSD share many symptoms, they are unique constructs. Vicarious trauma results from accumulated exposure to secondary trauma, while PTSD can develop after just one traumatic incident (Branson, 2019; Foreman, 2018). Additionally, vicarious trauma can result in apathy, anger, or cynicism toward clientele generally not associated with PTSD (Branson, 2019). Lanier and Carney (2019) established a statistically significant positive relationship between vicarious trauma and subthreshold or partial PTSD among a population of 220 counselor educators. Still, this relationship has not been well investigated in other groups.

Finally, for Research Question 6, no available research investigated the potential effects of trauma and overall job satisfaction on PTSD among this population. This question was developed out of the desire to understand better whether an individual or a combination of job satisfaction and vicarious trauma symptoms could predict the likelihood of developing PTSD symptoms above the cutoff score designated by the PCL-5. The knowledge from this research question may allow employers to better target employees at an increased risk for developing PTSD to ensure they are given access to appropriate resources. Simply logistic regression will be employed to investigate this potential relationship.

Threats to Validity

As Creswell (2009) noted, validity is an essential component of research that refers to the idea that the design and instrumentation used to measure what was intended to be measured. This assumption allows valid conclusions to be developed from the data

analysis (Creswell & Creswell, 2018; Frankfort-Nachmias & Nachmias, 2008). Threats to validity frequently arise in the research design, instrumentation development or implementation, and generalization of the results. While efforts can be made to minimize validity threats, they cannot be eliminated and thus must be acknowledged.

Internal threats to validity primarily impact the reliability of the results and the extent to which the outcomes can support a cause-and-effect relationship. Common threats to internal validity relevant to this study include selection biases, history, and instrumentation (Creswell, 2009).

The primary internal threat to this study's validity is the inability to select a fully randomized sample population (Creswell, 2009; de Vries, 1986). Frankfort-Nachmias and Nachmias (2008) explained that selection bias occurs when participants who have been chosen to participate have different characteristics from those who have not been selected and thus are predisposed to have specific outcomes. To reduce this bias, researchers can choose participants at random. However, despite having some randomness in the selection methods for the sample population, cluster sampling partnered with convenience sampling introduces a potential for sampling bias. Sampling bias could limit the results' generalizability since emergency dispatchers who voluntarily participated in the study may have differing responses from those who did not volunteer (Creswell, 2009; Groves et al., 2009).

History refers to events outside the researcher’s control that may impact one or more participants in ways that unduly influence the study's outcome (Creswell, 2009).

For emergency dispatchers, this may include a significant event such as an officer-involved shooting, natural disaster, official recognition, or traumatic event that influences the responses to the surveys or the participants' response rate. Mitigation techniques for this internal threat to validity include implementing a cross-sectional design and recruiting participants from across the United States to reduce the impact of events that affect only one geographic location.

Instrumentation refers to the administration, scoring, and psychometric properties of the survey tools used for the study (Creswell, 2009). This threat to internal validity will be minimized by using standardized instruments with published reliability and validity information.

In addition to threats to internal validity, threats to external validity must also be addressed. These include various components that impact the generalizability of the study's results and conclusions to the greater population (Groves et al., 2009). Creswell (2009) outlined three specific threats to external validity, including the interaction of selection and treatment, setting and treatment, and history and treatment. Because this study is limited to emergency dispatchers or telecommunicators in the United States, it is not generalizable to the non-telecommunicator first responders or any other individuals exposed to traumatic events.

Although emergency dispatchers will voluntarily complete the self-administered survey, how the physical setting impacts response rates or responses is unknown. For example, a dispatcher responding to the study in the workplace may provide more

emotionally charged answers than completing the survey at home. This can be mitigated through anonymity, but it must also be assumed that the participants will respond accurately and honestly. Finally, this study's results will be time-bound. They cannot be generalized to past or future situations as the outcomes may change with new legislation, experiences, or generational differences among participants (Creswell, 2009).

Ethical Procedures

Researchers should always strive to maintain the highest ethical standards in their work to avoid any situation that might disrespect or harm the participants involved. Modern ethical research should be based on a realistic assessment of the potential for harm and benefit to participants of a study (Clark, 2019). To mitigate any ethical issues and ensure full compliance with the National Commission for Protection of Human Subjects of Biomedical and Behavioral Research Act, this proposal and all components required will be submitted to the Walden University IRB for review before any participant recruitment or data collection. This study's primary ethical concerns involve recruitment procedures and data collection related to mental wellness.

To minimize or eliminate ethical concerns, I plan to recruit participants through agency representatives while maintaining anonymity by not gathering any personally identifying information from the participants. There will be no coercion during this process, and an emphasis will be placed on the voluntary nature of this study. Obtaining informed consent is essential during the recruiting process and can be challenging when implementing any self-administered survey (Clark, 2019). The informed consent

language must be clear and easy to understand while ensuring the participants know what will occur during the study. All participants will be provided with contact information for the researcher, information regarding the survey itself, informed consent, and a notice of the right to withdraw. There will be no incentives to participate in this study or any deception during the research.

While the purpose of this study is not to clinically diagnose individuals for PTSD or vicarious trauma, it is possible that surveys could trigger some distress as participants respond to the questions. Participants will be provided with the current 24-hour toll-free crisis intervention telephone number, links to the live chat options, and any other available resources at the beginning and end of the survey to mitigate a crisis and ensure the safety of those responding. Electronic data will remain anonymous, accessible to only the researcher and the dissertation committee. All information will be kept on a password-protected computer. Online surveys will likely be conducted through SurveyMonkey as this software provides quality options that protect anonymity and do not collect any personally identifying information, including computer IP addresses.

Summary

Data will be gathered electronically using four scales that were previously developed and validated: the PCL-5 (Weathers et al., 2013), JSS (Spector, 1994), TIS-6 (Roodt, 2004), and the VTS (Vrklevski & Franklin, 2008). Basic demographic information will also be gathered, and participants will need to acknowledge informed consent materials before continuing with the surveys. Qualified respondents will be over

18 years of age and currently working as emergency telecommunicators from multiple geographic locations in the United States based on Groves et al. (2009) and identified by the U.S. Department of Justice (2017) for uniform crime reporting. The data will be analyzed using descriptive statistics, Pearson's coefficient correlation analysis, independent samples t-test, and regression analysis.

Chapter 4: Presentation of Results and Findings

This quantitative study aimed to investigate the impact trauma may have on job satisfaction levels and turnover intention among emergency dispatchers in the United States. All participants were required to be currently working in a primary or secondary PSAP and be 18 years of age or older. Respondents were also required to be fully independent and not in a training position at their job. For this study, voluntary participants were invited to complete an anonymous online survey with no qualitative information asked to protect the integrity of any classified information they may be privy to. Six research questions guided this study:

- Research Question 1: Does the education level of an emergency dispatcher predict the existence of PTSD based on the PCL-5 cutoff score of 31-33?
- Research Question 2: Does the education level of an emergency dispatcher predict the severity of PTSD symptoms based on the PCL-5?
- Research Question 3: Does PTSD moderate the relationship between job satisfaction and turnover intention?
- Research Question 4: Does vicarious trauma moderate the relationship between job satisfaction and turnover intention?
- Research Question 5: Is there a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers?
- Research Question 6: Do vicarious trauma and job satisfaction levels predict the existence of PTSD among emergency dispatchers?

This chapter will provide information on demographics, data collected, data analysis, evidence of validity and trustworthiness, results, and a brief introduction to Chapter 5.

Data Collection

Data collection began once committee members and IRB approved this study. I sent emails and text-based messages for this study, made phone calls, and posted on social media pages to invite participants to partake in this voluntary study. Participants were provided with a link to an anonymous online survey created through SurveyMonkey that could be completed at any time on a device with internet access. Including a question requiring informed consent, participants were asked to answer 80 questions from the JSS, PTSD Checklist, VST, and TIS-6, in Appendix B. Though it was a lengthy survey, the average time for completion was about 8 minutes, indicating the time burden was lower than the original estimation.

The data collection process for this survey began on May 31st, 2021. One final response was submitted on August 2nd, 2021. During the first week, there were 97 responses. Week 2, June 7th to 13th, yielded 71 replies, and Week 3 yielded 20 additional responses. Five other persons responded during the weeks of July 19th to August 2nd. A total of 193 responses were collected during this survey. After removing incomplete surveys and one ineligible response based on location outside the United States, $N = 138$ samples were available for analysis.

Demographics

This study included only individuals over 18 years of age currently employed as

emergency telecommunicators in the United States. Table 1 reflects the participant age range reported for this study. Of the 138 valid respondents, the most strongly represented age group was 35 to 44, with $n = 42$.

Table 1

Participant Age Range

Age range in years	*n*	Percentage of total
18-24	10	7.25%
25-34	28	20.29%
35-44	42	30.43%
45-54	38	27.54%
55-64	17	12.32%
65+	3	2.17%

Figure 1 shows the participants' race. Most participants, 131, reported being White or Caucasian. This sample population somewhat resembled the national statistics provided by the U.S. Census Bureau (2019) in that the majority identified as White or Caucasian. Similar rates were also present for Native Hawaiian or Other Pacific Islander and American Indian or Alaska Native. However, the population was not representative of other races such as Black or African American, Hispanic or Latino, or Asian or Asian American. A breakdown of population race responses can be seen in Figure 1, and a comparison between the sample and the national population is portrayed in Figure 2.

Figure 1

Participant Race

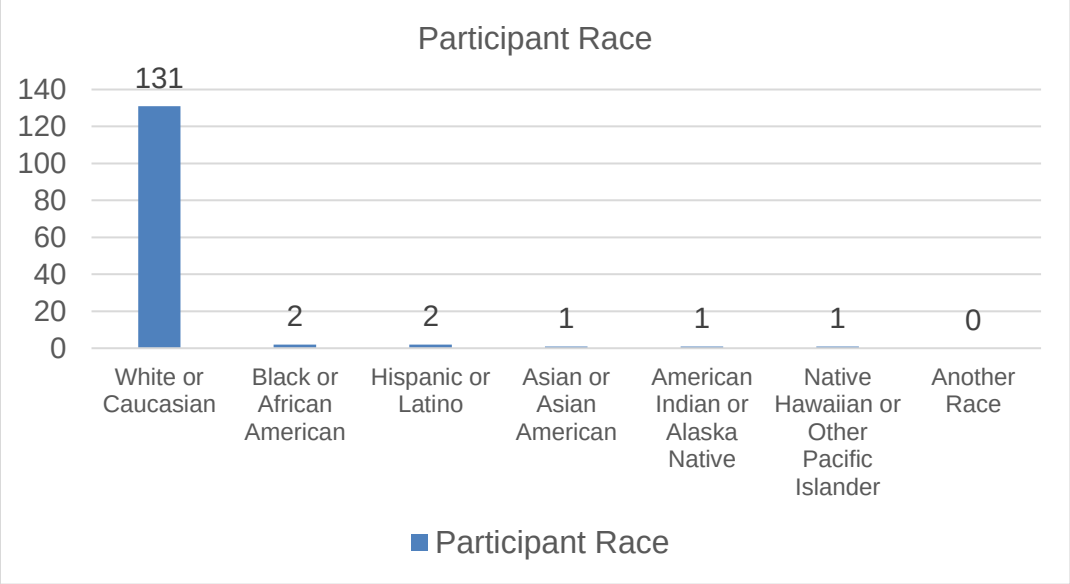
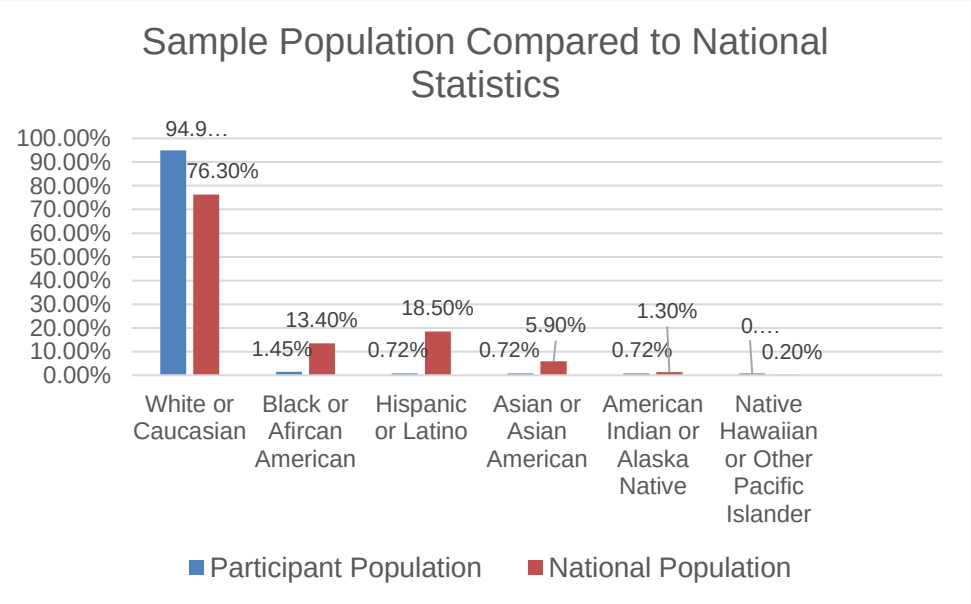


Figure 2

Sample Population Compared to National Population



In terms of gender, most participants, *n* = 115, identified as female, and *n* = 23 identified as male. No respondents identified as any gender option other than male or female, but nonbinary, transgender, intersex, or declining to respond were available options. The U.S. Census Bureau (2019) estimated a total population of female persons at 50.8%, indicating that males are underrepresented in this study compared to national statistics.

Table 2 shows that *n* = 38 participants reported graduating from college. Except for not attending school, all education levels were represented, and two participants documented technical degrees. These rates seem to closely align with the national education level, in which 88% of the population are high school graduates or above, and 32.1 percent have a bachelor's degree or higher (U.S. Census Bureau, 2019).

Table 2

Highest Education Level Completed

Education level	*n*	Percentage of total
Did not attend school	0	0.00%
Graduated from high school	14	10.14%
1 year of college	24	17.39%
2 years of college	36	26.09%
3 years of college	10	7.25%
Graduated from college	38	27.54%
Some graduate school	3	2.17%
Completed graduate school	11	7.97%
Other	2	1.45%

Table 3 documents the participant's marital status. None of the participants

reported being separated for this study, though all other categories were represented. Of the respondents, 68.84% reported being married or cohabiting.

Table 3

Marital Status of Participants

Marital status	*n*	Percentage of total
Single	23	16.67%
Married or cohabitating	95	68.84%
Widowed	1	0.72%
Divorced	17	12.32%
Separated	0	0.00%
Other	2	1.45%

Participant income levels are documented in Table 4. The most-commonly reported income level was between $30,000 and $49,999 for $n = 56$. Income ranges from $15,000 to $29,999 to over $150,000 were represented by this population. No respondents indicated an income of less than $15,000 annually.

Table 4

Participant Income Level

Income level	*n*	Percentage of total
Under $15,000	0	0.00%
$15,000 to $29,999	6	4.35%
$30,000 to $49,999	56	40.58%
$50,000 to $74,999	41	29.71%
$75,000 to $99,999	22	15.94%
$100,000 to $150,000	9	6.52%
Over $150,000	4	2.90%

Table 5 shows the religion of the participants. Ninety reported Christianity as their religion. Ten respondents marked “other” for religion. These responses included

Wiccan, Catholic, spiritual, Paganism, and eclectic blends.

Table 5

Participant Religion

Religion	*n*	Percentage of total
Atheist or Agnostic	20	14.49%
Christian	90	65.22%
Muslim	0	0.00%
Jewish	1	0.72%
Buddhist	1	0.72%
Hindu	0	0.00%
I prefer not to say	16	11.59%
Other	10	7.25%

Table 6 shows participants from each region and subregion selected for this study. Geography was widely dispersed, though some areas were not represented during this study. Specifically, Hawaii, Alaska, Oklahoma, Rhode Island, New Hampshire, Delaware, and Mississippi were not represented. Guam, the Federated States of Micronesia, Marshall Islands, Palau, Puerto Rico, the District of Columbia, and American Samoa were not represented. Northeastern states were the least represented in this sample size, with $n = 19$.

Table 6

Participant Location

Geographical region	*N*	Percentage of total
Northeastern States	19	13.77%
New England	9	6.52%
Middle Atlantic	10	7.25%
Midwestern States	33	23.91%
East North Central	21	15.22%
West North Central	12	8.70%
Southern States	40	28.99%
South Atlantic	26	18.84%
East South Central	9	6.52%
West South Central	5	3.62%
Western States	46	33.33%
Mountain	28	20.29%
Pacific	18	13.04%

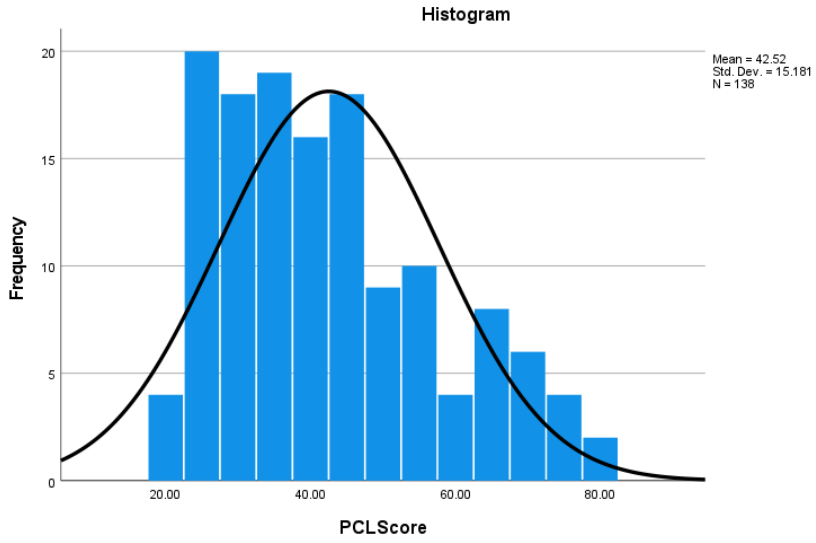
Descriptive Statistics and Scale Results

PCL-5

Participants were asked to complete 20 questions rated on a 0 to 4 Likert-type scale to assess PTSD symptomology. The PCL-5 showed excellent internal consistency with $\alpha = .94$. The total score was calculated by adding each score to a total sum. Scores higher than 31-33 indicate a higher likelihood of PTSD. Total scores fall between 20 and 80 points for all respondents, and no questions are reverse scored. SPSS descriptive and frequency analysis showed that $n = 103$, or 74.64%, reported scores greater than 31 (the low-end cutoff criteria). Furthermore, $n = 96$, 69.57%, scored greater than or equal to 33 on the PCL-5. For this population, $M = 42.52$, significantly above the high-end cutoff of 33. Figure 3 shows the frequency distribution.

Figure 3

PCL-5 Frequency Distribution



JSS

For the JSS portion of the survey, participants were asked to answer 36 questions on a Likert-type scale ranging from 1 to 6. SPSS was used to reverse code selected items per Spector's (1994) instructions. Total scores can range from 36 to 216, with higher scores representing higher levels of job satisfaction. The ranges are 36 to 108 for dissatisfaction, 144 to 216 for satisfaction, and between 108 and 144 for ambivalent.

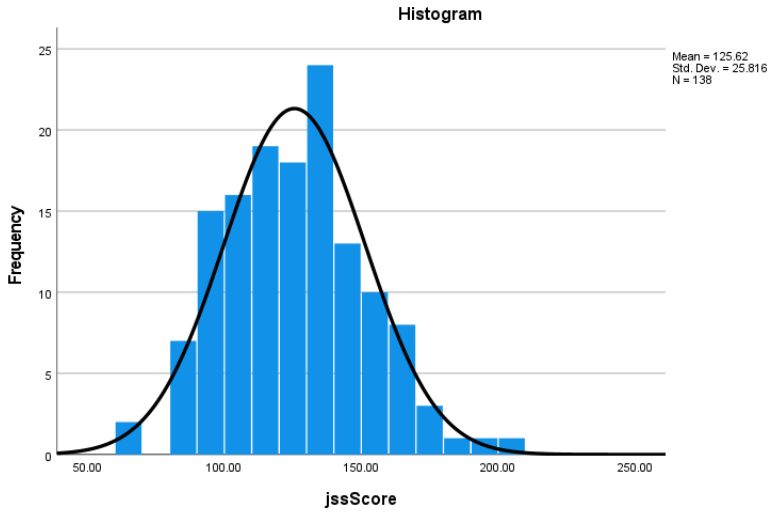
The JSS showed internal consistency with α = .907. All subscales except operating conditions also showed good internal consistency. For the subscales internal consistency values were as follows: pay α = .887; promotion α = .767; supervision α = .878; fringe benefits α = .812; contingent rewards α = .735; operating conditions α = .494, inter-item correlation was .194; coworkers α = .748; nature of the job α = .805;

communication α = .767. Internal consistency for the operating conditions subscale was poor. With the removal of Question 15 relating to efforts being blocked by red tape, internal consistency would have improved to α = .528.

The largest group of respondents, n = 66, scored in the ambivalent area for job satisfaction rates. Approximately 48% of respondents were ambivalent, 24% were satisfied, and 28% were dissatisfied. Figure 4 shows the frequency distribution for the JSS scores for this group of participants, which falls along the normal curve.

Figure 4

JSS Frequency Distribution



VTS

The VTS published by Vrklevski et al. (2008) is a self-administered survey consisting of 8 questions rated on a 7-point Likert scale ranging from 1 to 7. Composite scores are calculated by summation of all items on the VTS. Total scores can range from

7 to 56. Composite scores less than 28 indicate low vicarious trauma, while those greater than 43 indicate high vicarious trauma. Scores between 28 and 43 suggest moderate vicarious trauma (Newman et al., 2019). This group of participants reported scores ranging from 20 to 56, with a mean of 36.15. The VTS showed acceptable internal consistency with $\alpha = .782$. For this study, about 7% of participants reported low levels of vicarious trauma. An additional 55% reported moderate vicarious trauma, and 38% reported high levels of vicarious trauma. Of the participants, 93 percent ($n = 128$) reported at least moderate levels of vicarious trauma.

TIS

Finally, participants were asked to complete the TIS-6. The TIS-6 is a 6-item scale rated on a 5-point Likert-type scale. A total summation is calculated from the six items with a range of 6 to 30, with higher scores indicating a higher turnover intention. The TIS showed excellent internal consistency with $\alpha = .819$. The TIS-6 scores had a mean of 18.98 with a full range of 6 to 30. There is no documented categorization for the TIS-6, but for this population, $M = 18.98$, and the mode was 23.

Research Questions

Research Question 1

Research Question 1: Does education level predict the existence of PTSD based on the PCL-5 cutoff score of 31-33?

H_10: Education level does not predict the existence of PTSD based on the PCL-5

cutoff score of 31-33.

The results of this study failed to reject the null hypothesis for this research question. There was no statistically significant relationship between education level and the existence of PTSD found during this study. The first step to assess this research question was to create a variable in SPSS for PCL scores greater than or equal to 31 – the lowest PCL-5 cutoff score that indicates the likely presence of PTSD, thus creating a nominal binary dependent variable. For this variable, dummy coding was used. A score of 0 indicated a sum of less than 31, and a score of 1 indicated a sum of 31 or greater. A chi-square for independency test was conducted through SPSS to determine whether a possible relationship existed between education level and the possibility of PTSD based on the PCL-5 cutoff score of 31.

Table 7 shows a violation of assumptions for the chi-square test. SPSS calculations showed that seven cells (43.8%) had an expected count of less than 5, greater than the allotted 20% typical with the chi-square test. Furthermore, the likelihood ratio showed X^2 (7, N = 138) = 14.28, p = .046, which indicates no statistically significant relationship between the variables.

Table 7

Chi-Square Violation of Assumptions

	Value	*df*	Asymptotic Significance (2-sided)
Pearson Chi-Square	11.690[a]	7	.111
Likelihood Ratio	14.282	7	.046
Linear-by-Linear Association	.976	1	.323
N of Valid Cases	138		

a. 7 cells (43.8%) have an expected count of less than 5. The minimum expected count is .51.

Two key assumptions are required to conduct the chi-square test: Variables must be categorical and consist of two or more independent groups (McHugh, 2013). For this study, education level and the dichotomous variable created from the PCL-5 cutoff score are considered categorical and independent. A participant cannot be a member of more than one group. Table 8 shows the crosstabulation information from the chi-square test conducted in SPSS. The crosstabulation indicates most groups (except those marked *Other* for education level) had some representation for scores less than 31 and 31 or greater on the PCL-5.

Table 8

Crosstabulation Education and PCL Categorical Score

What is the highest level of education you have completed?		PCL Score Value .00 (Under 31)	PCL Score Value 1.00 (Over 31)	Total
Other (please specify)	Count	0	2	2
	Expected Count	.5	1.5	2.0
Graduated from high school	Count	6	8	14
	Expected Count	3.6	10.4	14.0
1 year of college	Count	1	23	24
	Expected Count	6.1	17.9	24.0
2 years of college	Count	10	26	36
	Expected Count	9.1	26.9	36.0
3 years of college	Count	1	9	10
	Expected Count	2.5	7.5	10.0
Graduated from college	Count	13	25	38
	Expected Count	9.6	28.4	38.0
Some graduate school	Count	1	2	3
	Expected Count	.8	2.2	3.0
Completed graduate school	Count	3	8	11
	Expected Count	2.8	8.2	11.0
Total	Count	35	103	138
	Expected Count	35.0	103.0	138.0

Research Question 2

Research Question 2: Does education level predict the severity of PTSD symptoms based on the PCL-5?

H_20: Education level does not predict the severity of PTSD symptoms based on the PCL-5.

This study failed to reject the null hypothesis as there was no statistically significant relationship between the education level and severity of PTSD symptoms based on the PCL-5. A one-way ANOVA was intended to assess the relationship between the variables for this study. However, six assumptions must be met when using a one-way ANOVA (Navarro, 2020).

Assumption one requires that the dependent variable be measured at the interval or ratio level. The PCL-5 scores are on a continuous scale of 0 to 80, with a true zero indicating an absence of any of the variable. There is an order among the scores, but it cannot be stated that a score of 30 is three times worse than a score of 10; therefore, this variable is measured on an interval scale. Assumption two requires the independent variable to contain two or more categorical, independent groups. Education level was divided into eight separate groups for this study. No participants were part of more than one education category, thus meeting assumption two. Assumption three requires independent observations, which means there is no relationship between the responses in each group or between the groups themselves (Navarro, 2020). In other words, the measurements from each respondent are in no way related to the measures of another

respondent. Assumption four requires no significant outliers. SPSS showed no outliers for the PCL-5 or the education level.

Assumption five requires the dependent variable to be approximately normally distributed for each category of the independent variable. This assumption was tested using the Shapiro-Wilk test of normality and was violated for three groups (2 years of college, graduated from college, and completed graduate school), as seen in Table 9.

Table 9

Violation of Normality

		Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	What is the highest level of education you have completed?	Statistic	*df*	Sig.	Statistic	*df*	Sig.
PCL Score	Other (please specify)	.260	2	.			
	Graduated from high school	.162	14	.200*	.905	14	.133
	1 year of college	.149	24	.182	.935	24	.125
	2 years of college	.121	36	.200*	.933	36	.030
	3 years of college	.134	10	.200*	.980	10	.965
	Graduated from college	.124	38	.149	.902	38	.003
	Some graduate school	.246	3	.	.970	3	.668
	Completed graduate school	.205	11	.200*	.847	11	.039

*. This is a lower bound of the true significance.

a. Lilliefors Significance Correlation

Due to the violation of normality in the data, a Kruskal-Wallis H test was used to determine if a statistically significant difference existed between education level groups. This test showed no statistically significant difference in PCL scores between the groups based on education level, X^2 (7) = 10.00, p = .188. Mean ranks for each group can be seen in Table 10.

Table 10

Mean Ranks

	What is the highest level of education you have completed?	*n*	Mean Rank
PCL Score	Other (please specify)	2	61.50
	Graduated from high school	14	50.32
	1 year of college	24	79.63
	2 years of college	36	74.76
	3 years of college	10	89.60
	Graduated from college	38	61.63
	Some graduate school	3	52.67
	Completed graduate school	11	69.55
	Total	138	

Research Question 3

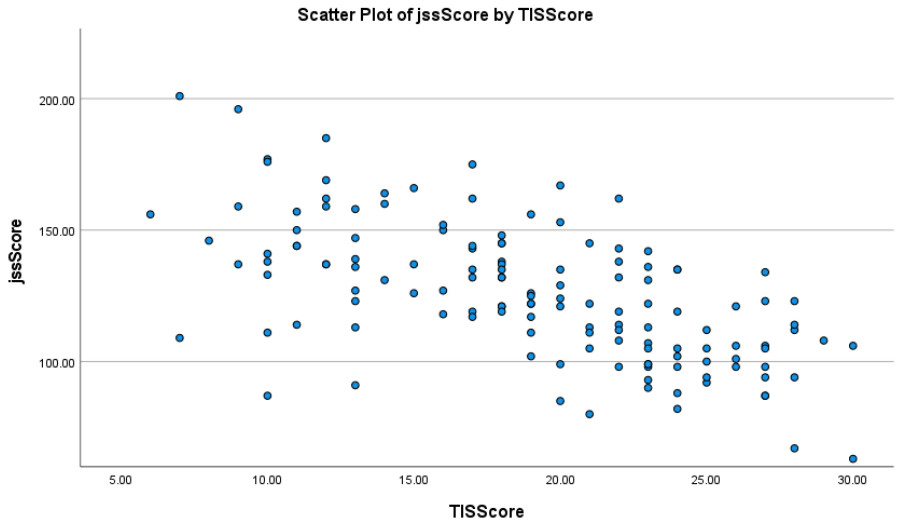
Research Question 3: Does PTSD moderate the relationship between job satisfaction and turnover intention?

H_30: PTSD does not moderate the relationship between job satisfaction and turnover intention among dispatchers.

The results of this study failed to reject the null hypothesis of this research question. To address the question, analysis was needed to determine whether a relationship existed between job satisfaction and turnover intention. This determination was made using the Spearman correlation analysis to accommodate ordinal data. This analysis showed a significant negative correlation between job satisfaction and turnover intention where $r_s = -.63$, $n = 138$, $p < .001$. This relationship can be seen in Figure 5.

Figure 5

Scatter Plot of JSS and TIS



Once this relationship was confirmed, this research question was addressed using multiple regression analysis conducted with Hayes' (2020) PROCESS macro add-on version 3.5 for SPSS. Based on the model summary, when *X* = JSS, *Y* = TIS-6, and *W*= PCL, the R^2 = 0.39 and $p < .001$. These results indicate that job satisfaction, PCL score, and turnover intention were associated. However, the effect of the moderator value nor the interaction between *X* and *Y* were statistically significant ($p = .77$).

It was determined that decreased job satisfaction is associated with increased turnover intention. Still, neither turnover intention nor vicarious trauma are statistically significant predictors, nor do they interact significantly. The effect of the TIS score on the JSS score was negative but not significant ($B = -2.31$, $SE = .89$, $p = .01$) and the effect of VTS was negative but not significant ($B = .04$, $SE = .43$, $p = .92$).

Research Question 4

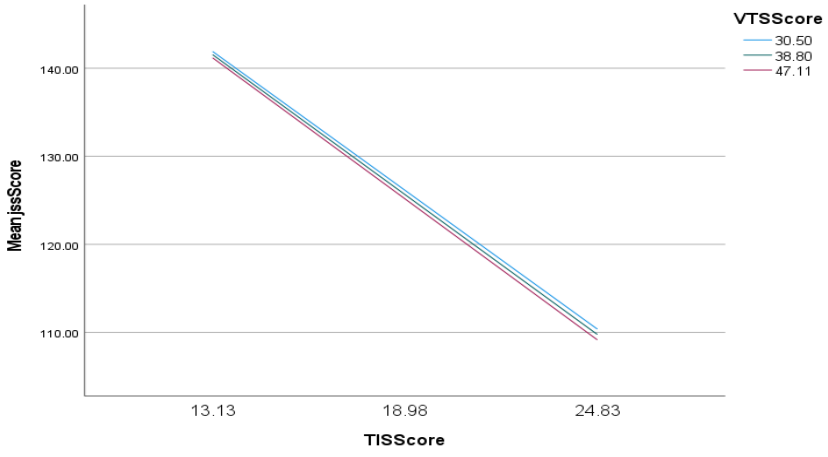
Research Question 4: Does vicarious trauma moderate the relationship between job satisfaction and turnover intention?

$H_4$0: Vicarious trauma does not moderate the relationship between job satisfaction and turnover intention among dispatchers.

The results of this study failed to reject the null hypothesis for this research question. This question was addressed using multiple regression analysis conducted with Hayes' (2020) PROCESS macro add-on version 3.5 for SPSS. Based on the model summary, when *X* = JSS, *Y* = TIS-6, and *W*= VTS, the R^2 = 0.39 and $p < .001$. These results indicate that job satisfaction, vicarious trauma, and turnover intention were associated. This relationship is shown in Figure 6. However, neither the effect of the moderator value nor the interaction between *X* and *Y* were statistically significant (p = .95).

Figure 6

Means Within One Standard Deviation of VTS



It was determined that decreased job satisfaction is associated with increased turnover intention. Still, neither turnover intention nor vicarious trauma are statistically significant predictors, nor do they interact significantly. The effect of the TIS score on the JSS score was negative but not significant (B = -2.61, SE = 1.47, p = .08) and the effect of VTS was negative but not significant (B = -.01, SE = .71, p = .99).

Research Question 5

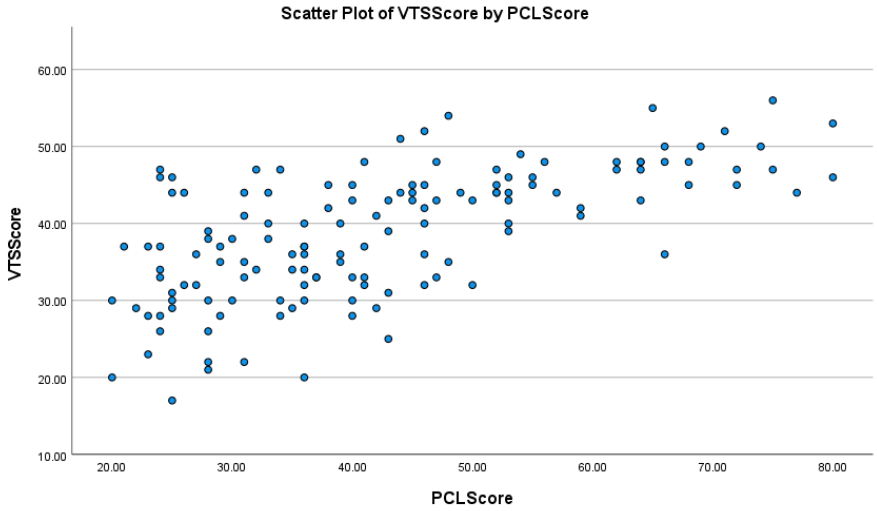
Research Question 5: Is there a relationship between vicarious trauma and PTSD symptoms among emergency dispatchers?

$H_5$0: There is no relationship between vicarious trauma and PTSD symptoms among emergency dispatchers.

The null hypothesis was rejected following the results of this study, indicating a possible relationship between vicarious trauma and PTSD symptoms among emergency dispatchers. To test this relationship, SPSS was used to run a Spearman correlation for the ordinal dataset. Results of the Spearman correlation showed a significant positive correlation between PTSD and VTS at r_s = .64, n = 138, p < .001. Therefore, it can be stated that there is a statistically significant positive relationship between VTS and PTSD in this study. This correlation can be seen in Figure 7.

Figure 7

Scatter Plot of VTS and PCL-5



Research Question 6

Research Question 6: Do vicarious trauma and job satisfaction levels predict the existence of PTSD among emergency dispatchers?

H_60: Vicarious trauma and job satisfaction levels do not predict the existence of PTSD among emergency dispatchers.

The null hypothesis was rejected for this study based on the data collected. A simple regression was used to predict whether VTS scores or JSS scores impacted PCL scores. VTS scores explained a significant amount of the variance in PCL-5 scores (F (2, 135) = 57.41, $p < .001$, R^2 = .46, $R^2_{adjusted}$ = .45). The unstandardized regression coefficients (B = -.13 for JSS and B = 1.09 for VTS) indicated that an increase in one unit on the PCL 5 corresponded to, on average, a decrease in JSS score of .13 points and an increase in VTS scores by 1.09 points. The standardized regression coefficients for VTS

(β = .60, p = < .001) and for JSS (β = -.21, p = .001) scores indicated that VTS scores explained more of the change in PCL scores than JSS scores.

Tests to see if the data met the assumption of collinearity indicated that multicollinearity was not a concern (VTS score tolerance = *.95*, *VIF = 1.06*; JSS score tolerance = .95, *VIF = 1.06*). Standard residuals were analyzed on the data, which showed no significant outliers (Std. Residual Min -2.64, Std. Residual Max = 2.85). The data also met the assumption of independent errors (Durbin-Watson value = 2.15), indicating the data is not autocorrelated. The normal P-P plot of standardized residuals showed the points were not completely on the line but were close, indicating approximately normally distributed errors. The P-P plot can be seen in Figure 8. Finally, the scatterplot of standardized residuals showed that the data met the homogeneity of variance and linearity assumptions, as shown in Figure 9.

Figure 8

Normal P-P Plot of Regression Standardized Residual

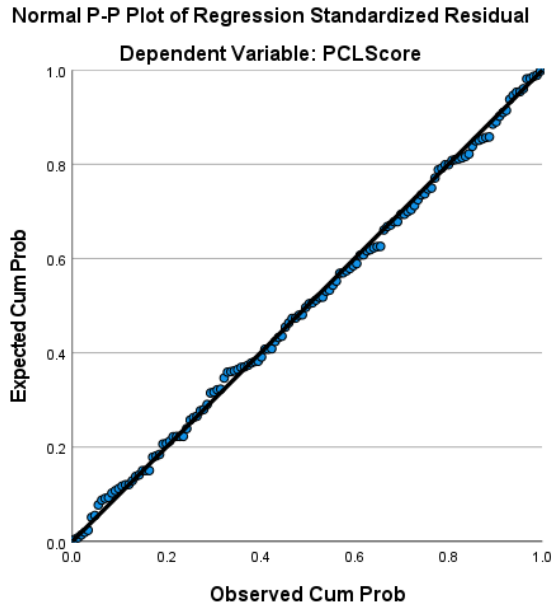
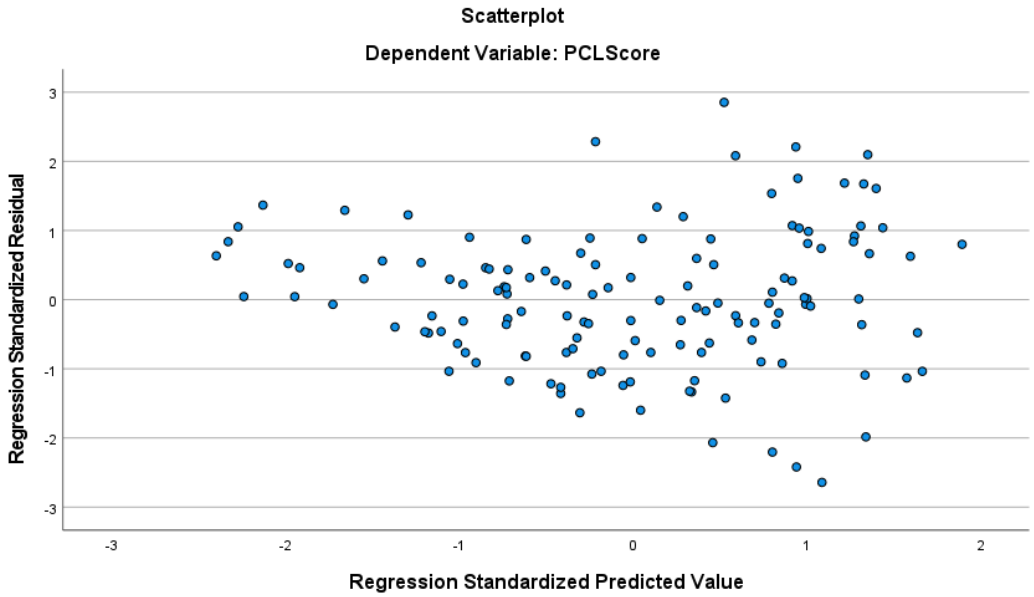


Figure 9

Scatterplot of Standardized Residuals



Summary

Six research questions were investigated for this study. The first research question examined whether education level predicted the existence of PTSD using the cutoff score of 31 from the PCL-5. The results of this study indicated no statistically significant relationship between education level and the presence of PTSD based on the PCL-5.

The second research question looked to determine whether education level predicted the severity of PTSD symptoms based on composite scores from the PCL-5. The results indicated no statistically significant relationship between education level and PTSD severity based on the combined score of the PCL-5.

Research question three examined whether PTSD symptoms moderated the relationship between job satisfaction and turnover intention. No statistically significant association was identified based on the data collected during this study, which indicates that PTSD symptoms did not impact the relationship between job satisfaction and turnover intention among the sample population.

Research question four investigated whether vicarious trauma symptoms moderated the relationship between job satisfaction and turnover intention. No statistically significant association was identified based on the data collected during this study. This indicates that vicarious trauma symptoms did not impact the relationship between job satisfaction and turnover intention among the sample population.

Research question five addressed the relationship between vicarious trauma and PTSD symptoms. This study found a statistically significant positive relationship

between vicarious trauma and PTSD symptoms.

Finally, research question six investigated whether vicarious trauma and job satisfaction levels predicted the existence of PTSD among emergency dispatchers. This study found that increased vicarious trauma symptoms predicted increased PTSD symptoms. Additionally, it was found that decreased job satisfaction levels predicted increased PTSD symptoms. All scales and subscales used were found to have good internal consistency, presented in Table 11.

Table 11

Cronbach's Alpha Values

Scale	Subscale	Items	α	Inter-item Correlation
PCL-5		20	.940	.441
VTS		8	.782	.308
TIS		6	.819	.433
JSS		36	.907	.212
JSS	Pay	4	.887	.665
JSS	Promotion	4	.767	.453
JSS	Supervision	4	.878	.658
JSS	Fringe Benefits	4	.812	.523
JSS	Contingent Rewards	4	.735	.412
JSS	Operating Conditions	4	.494	.194
JSS	Coworkers	4	.748	.447
JSS	Nature of the Job	4	.805	.549
JSS	Communication	4	.767	.454

Chapter 5: Discussion, Conclusions, and Recommendations

This quantitative study aimed to investigate the impact trauma may have on job satisfaction levels and turnover intention among emergency dispatchers in the United States. Employers can use the results to identify support measures to reduce turnover rates at PSAPs. The information from the study may inform future research on telecommunicators and support the reclassification of dispatching in the SOC. For this study, the predictor variable was job satisfaction rates measured by the JSS, and the criterion variable was turnover intention. Trauma was the moderator as there is a documented correlation between job satisfaction and turnover intention. This chapter will present an interpretation of the findings, limitations of the study, and recommendations and implications for this study and future studies.

Interpretation of Findings

This study showed that education level did not significantly affect the presence or severity of PTSD symptoms among emergency dispatchers. It was also determined that neither vicarious trauma nor PTSD symptoms moderated the relationship between job satisfaction and turnover intention among the sample population. This population's turnover intentions are slightly elevated, but the national staffing shortage demonstrates a deeper underlying problem. However, there was a clear correlation between PTSD and vicarious trauma symptoms and a relationship between both types of trauma symptoms and job satisfaction. On average, an increase of one unit on the PCL-5 score corresponded to a rise in vicarious trauma scores of 1.09 and a decrease in job

satisfaction score of .13 points. Though the impact was slight, it was determined that increased trauma symptoms corresponded with a reduction in job satisfaction. Additionally, it was found that an increase in PTSD symptoms correlated with an increase in vicarious trauma.

Prevalence of Trauma

The first finding from this study was the prevalence of trauma among emergency dispatchers. The sample population showed that 74.64% (103 respondents) scored higher than 31 on the PCL-5. These rates indicate a strong possibility that nearly 75% of the sample population could meet the diagnostic criteria for PTSD (see Weathers et al., 2013). Furthermore, 69.57% had scores higher than 33, which indicated the probable presence of severe PTSD. The average score of the sample population was also about 43, which is significantly higher than the recommended cutoff. This study marks a significant increase from similar research showing that between 13.34 and 15.56% of dispatchers experienced PTSD (Klimeley et al., 2018). The numbers found in this study also show a significant increase from the typical lifetime prevalence of PTSD in adults of 3.5% identified by previous research (Pierce & Lilly, 2012).

Vicarious trauma was also prevalent among emergency dispatchers, with 93% reporting at least moderate levels. Only 10 participants of the 138 reported low levels of vicarious trauma for this study. There is disagreement on the official guidelines of vicarious trauma, so there is no way to compare this information to the general population currently available. Still, this baseline information significantly contributes to

the literature as vicarious trauma is not widely investigated, especially among emergency dispatchers.

At first glance, this information indicates that emergency dispatchers experience a significantly higher amount of PTSD and vicarious trauma than other populations. However, there are some limitations to this conclusion. First, the sample population knew in advance that this study sought to investigate the potential effect of trauma among dispatchers. It is possible that dispatchers who believed they did not have trauma did not participate, so the sample population may not fully represent the larger group. Additionally, the anonymous nature of the study also could have allowed respondents to provide inaccurate or falsified information that skewed the scores relating to trauma.

Job Satisfaction

The second finding from this study was that about 47% of respondents were simply ambivalent toward their job, about 28% of individuals were dissatisfied with their job, and about 24% were satisfied overall. I also found that an increase in job satisfaction corresponded with a slight decrease in PTSD symptoms. The correlation here was statistically significant, but the effect was subtle. The results indicate that though increased job satisfaction is associated with fewer PTSD symptoms, the effect is relatively small.

Similar research showed that national job satisfaction rates in 2020 increased for the 10th consecutive year and were at the highest level since 1995 when about 56.9% were satisfied with their work (Levanon et al., 2021). However, this research did not

elaborate on job satisfaction levels specific to the field of work. Additionally, there is no available research on job satisfaction levels specific to emergency dispatching at the time of this study, so the results from this survey serve as a baseline for future research. It should also be noted that ambivalence toward the job cannot necessarily be distinguished as satisfaction or dissatisfaction at this time and would require further investigation. The following sections address pay, promotion, supervision, fringe benefits, contingent rewards, operating conditions, coworkers, the nature of the work itself, and communication.

Pay

A slight majority, about 54% of respondents, disagreed with the statement that they were being paid a fair amount for the work performed (JSS 1). However, over 68% of respondents believed that raises were too few and far between (JSS 10). When asked whether respondents felt unappreciated by the organization when thinking about their pay, nearly 58 percent agreed with the statement (JSS 19). Of those, 21.74% felt strongly about their agreement. Finally, almost 64% of respondents disagreed when asked if they felt satisfied with the chances for salary increases (JSS 28).

There is a significant disparity in pay nationwide for emergency dispatchers, as with many positions. The Bureau of Labor Statistics (2021) reported that the median annual wage of police, fire, and ambulance dispatchers was $43,290 (about $20.82 hourly) in May 2020. A search on Indeed.com on November 3rd, 2021, for “911 Dispatcher” with no location found entry-level positions starting as low as $16.00 per

hour in Baytown, TX, and $13.00 hourly in Clarksville, Arkansas. On the high end, emergency communications officers in Fremont, California, offered a starting wage of $85,213 (around $43 hourly) up to $103,578 (around $52 hourly), which is more than three times that of the Arkansas workers of the same experience level. Pay disparities can be attributed to living costs in each geographical region, population density, and agencies served. Still, it is worth noting that it can still be difficult to attract employees in areas advertising lower startup wages. Additionally, Clarksville is about 70 miles (just over one-hour drivetime) away from the city of Conway, where the pay for an emergency dispatcher is advertised at $16.00 to $21.00 per hour which is closer to the national average.

Promotions

When asked about opportunities (JSS 2), nearly 83% of respondents agreed there is too little chance for a promotion at their job. Of these respondents, 44% agreed strongly with the statement. Respondents also disagreed that well-performing employees have a fair chance of promotion (JSS 11). Over 36% strongly disagreed with this statement, and nearly 77% disagreed. Furthermore, about 86% of respondents disagreed that people in their workplace get ahead as fast as in other places (JSS 20). Finally, an overwhelming majority of nearly 74% reported being dissatisfied with chances for promotion.

There are significant limitations when looking at opportunities for promotion for an emergency dispatcher. Though many agencies hire emergency dispatchers to work

both radios and phones, there is some opportunity for early advancement in other agencies. For example, employees may be employed as call-takers or radio operators and then promoted to full dispatchers responsible for phones and radio transmissions. Different agencies use Emergency Telecommunicator I to III to demonstrate working independently on specific calls. Further, there are limited opportunities for first-line supervisors. Once that milestone has been reached, the employee would typically need to be promoted to the role of center supervisor. Upward movement can be challenging as one center supervisor may remain for many years. At the same time, first-line supervisors compete for the job upon vacancy. The limited number of posts within each PSAP paired with the finite number of potential promotional roles is a definite hindrance for emergency dispatchers.

Supervision

Supervision was less controversial than in previous subjects. When asked about supervisor competency, about 65% agreed that their supervisor was competent (JSS 3). Furthermore, nearly 73% disagreed with the statement that their supervisor was unfair to them (JSS 12). About 51% felt their supervisor showed too little interest in the feeling of subordinates (JSS 21), and over 78% agreed that they liked their supervisor (JSS 30). There does not appear to be a strong need to address this area further currently.

Fringe Benefits

Fringe benefits can be financial or non-monetary, ranging from free gym passes to regular promotions in the workplace (Chukwudumebi & Kifordu, 2018; Kulikowski &

Sedlak, 2017). When asked about fringe benefits, about 41% agreed that they were not satisfied with those received (JSS 4), and around 65% felt their benefits were as good as most other organizations (JSS 13). Nearly 70% felt their benefits package was equitable (JSS 22). Additionally, when asked if there are benefits that respondents did not have that they believed they should (JSS 29), over 76% agreed. These mixed results might be a good place for further investigation. The language used by Spector (1994) in the JSS was likely referring to insurance, 401ks, and retirement plans when the scale was created. However, modern fringe benefits include working remotely, access to subsidized meals, gym passes, and parking benefits. A majority agrees that some benefit is missing, but it is unclear what that benefit is from this study.

Contingent Rewards

Contingent rewards are simply a constructive transaction between a supervisor and an employee in which positive performance is reinforced (Andersen et al., 2018; Hilton et al., 2021). They are typically only given when an employee has been engaged in a specific behavior or completed a task. These rewards are most often used to support leaders in attaining performance targets, completing required tasks, reducing risks, and guiding employee behavior. Typical contingent rewards include material goods like gift cards, verbal praise, or other prizes that do not have significant material value but are symbolically positive (Andersen et al., 2018).

Contingent rewards were also assessed using the JSS. When asked if respondents felt they received appropriate recognition (JSS 5), just over 67% disagreed to some

extent, and 65% disagreed when asked if they thought their work was appreciated (JSS 14). A substantial majority of nearly 78% agreed that there were few contingent rewards for working for their organization (JSS 23), and almost 74% did not feel their efforts were rewarded the way they should be.

Based on this study, many emergency communications officers agree that contingent rewards are lacking nationwide. This area warrants further investigation as contingent rewards can often be provided at little to no cost and may align with another responding unit's recognition. For example, a law enforcement officer receiving a Life Saver award for performing effective CPR on an unresponsive patient may align with an emergency dispatcher providing quality instructions to the caller. Employee recognition may come via newsletter, special announcement, email, or documentation in the personnel file.

Operating Conditions

Just under 51% of the respondents felt their rules and policies made doing a good job difficult (JSS 6), and just under 48% felt their efforts to do a good job were blocked by red tape (JSS 15). Just under 51% of respondents thought they had too much to do at work, and only 30% felt they had too much paperwork. However, this area is challenging to assess since emergency dispatchers' responsibilities range widely from one organization to the next. Some emergency dispatchers are only responsible for taking calls and providing information to responding agencies. Others are also responsible for maintaining large amounts of records, data entry, and other tasks. The diverse

responsibilities may explain why this area was the most evenly divided of all the subsections investigated. There is not an overwhelming need to address this area further, though there were individual respondents who felt strongly about each of the questions in this subsection.

Coworkers

There were mixed results regarding coworkers. Nearly 86% of the respondents for this survey reported liking the people they work with (JSS 7), and 83% agreed that they enjoyed their coworkers (JSS 25). These results were unexpected due to the high-stress nature of the surveyed position. However, 71% of the same sample population agreed that they had to work harder because of the incompetence of the people they work with (JSS 16), and 80% agreed that there was too much bickering and fighting at work.

These conflicting responses to coworkers warrant further investigation. It is possible that emergency communications officers rely on coworkers for companionship but not necessarily for assistance with the work itself. The high-stress nature could also lend itself to the reports of bickering and fighting at work. More research would benefit the literature here.

Nature of the Job

As expected, 73% disagreed with the statement that their job was meaningless (JSS 8). Of the respondents, nearly 41% stated they felt very strongly about this belief. Only seven respondents from the 138 sampled reported not liking doing their required work tasks (JSS 17). In other words, nearly 95% of the dispatchers surveyed enjoyed

doing their job. To further bolster this statement, almost 93% reported feeling a sense of pride in the position (JSS 27), and nearly 83% found their job enjoyable (JSS 35). Many public servants are expected to work long hours, through weekends and holidays, and various shifts that are not always congruent with a typical lifestyle. These workers tend to have passion for what they do to overcome the challenges associated with a poor work-life balance, high-stress positions, and demanding work schedules.

Communication

Perhaps the most surprising result of this study surrounded feelings about communication. The role of an emergency dispatcher is based on good communication skills, yet this area seems to be lacking for many respondents. Nearly 75% of respondents disagreed with the statement that communication was good within their organization (JSS 9), just under 66% reported that the organization's goals were clear to them (JSS 18), and 67% agreed that they often feel they do not know what is going on with the organization (JSS 26). Finally, about 62% felt work assignments were fully explained (JSS 36).

Effective communication in the workplace is proactive, polite, constructive, professional, transparent, and technologically friendly (Kalogiannidis, 2020; Reddy & Gupta, 2020). In the workplace, managers must communicate organizational goals and objectives to employees and other stakeholders (Kalogiannidis, 2020; Stacho et al., 2019). Based on the responses from this study, there seems to be a deficiency in downward communication from top to bottom in the organization’s hierarchy. However, it is unclear whether horizontal or upward communication are also affected; thus, this

area should be further investigated. Effective communication of each type is directly related to job satisfaction and employee performance (Kalogiannidis, 2020; Reddy & Gupta, 2020; Stacho et al., 2019).

Turnover Intention

Although there is no formal documentation for grouping on the TIS-6, it is generally understood that a score greater than 18 indicates a likelihood of leaving the organization. When splitting the total score into groups of 6 to 18 and 19 to 30 (with 18 being the midline), it was determined that 44.9 percent of respondents fell in the lower half and 55.1 percent fell in the greater half. Unfortunately, there is no recent research to compare these turnover intentions, so this data serves as a baseline for future research. The most current information regarding turnover rates among emergency dispatchers from 2009 indicated about 17 percent annual turnover but did not measure intentions (Association of Public Safety Communications Officials, 2009). There is no way to determine actual turnover from the results of this study. Still, more than half of the respondents would consider leaving their organization if offered a better opportunity.

Limitations of the Study

As with most studies, this research is subject to several limitations. The first is the lack of existing research on the emergency dispatcher population. Despite the recent renewed interest in the field, very little scholarly work emphasizes the emergency dispatcher population. As a result, it is challenging to compare the results of this study with current data.

The second major limitation lies in the voluntary and self-reporting nature of the study. The stigma attached to emotional and psychological vulnerability may still be a problem among emergency dispatchers due to the potential for occupational repercussions like perceived weakness or duty-fitness evaluations. Therefore, potential respondents may have chosen not to participate for fear of repercussions. It is also possible that emergency dispatchers aware of existing trauma took a greater interest in the study and were more strongly represented. As with any voluntary self-reporting research, it must be assumed that all participants were genuine in their responses.

Although the population was not particularly difficult to reach, there were some hurdles when reaching out to center supervisors. Two supervisors respectfully declined participation in this study as they believed it would place additional emotional strain on the employees and exacerbate existing staffing problems. One center supervisor reported that the staffing crisis was so severe that the employees would not have time to complete the survey. This supervisor chose not to add to the mental burden of the workers by asking for an additional task of them.

The third major limitation is the nature of trauma and PTSD. PTSD and other trauma-based psychological conditions can affect a person at any point in their life. The causes vary widely, and responses to a traumatic event are highly individualized. The disparities in personal and occupational responsibilities, exposure to traumatic events, and other factors could contribute to differences in trauma symptoms. However, common patterns emerge that allow for diagnoses and assessment of PTSD. The quantitative

nature of this study does not support the assumption that the role of dispatching caused, aggravated, or in any way contributed to trauma symptoms among the population.

Finally, there are shortcomings in methods used to assess trauma-based symptoms among emergency dispatchers. Specifically, no available measures were designed, normed, and validated for use among emergency dispatchers. While validated with multiple populations, the PCL-5 and the VTS are not specifically designed for emergency dispatchers.

Implications

Prevalence of Trauma

This study indicated that emergency dispatchers have a significantly greater prevalence and severity of PTSD symptoms resulting from exposure to trauma. However, because it is impossible to determine this trauma occurred in the workplace, another unique possibility deserves some consideration: Individuals who work as emergency dispatchers may be psychologically prepared for the role.

Emergency dispatching is a unique line of work that requires dispatchers to quickly process traumatic information, recover from any emotional, cognitive, or physical impact it may have on them, and continue working to handle the following situation effectively. If a worker cannot effectively isolate these incidents and move forward repeatedly throughout their shift, they may not complete the training program or maintain employment in the role. Because the respondents in this study were independent emergency dispatchers who had completed a training program, they may have been

pulling from existing coping skills or personality traits that made them intrinsically more successful.

Defense Mechanisms

Recent research into how people positively cope with trauma may shed some light on this theory. Defense mechanisms, first documented by Sigmund Freud, are unconscious operations that protect the Self from the awareness of feelings and thoughts of both internal and external stressors (Di Giueseppe et al., 2018; Di Giuseppe et al., 2020; Di Giuseppe et al., 2021; Gori et al., 2020; Zhao & Ding, 2019). Di Giueseppe et al. (2018) investigated eight groups of mature defense mechanisms, including anticipation, affiliation, altruism, humor, self-assertion, self-observation, sublimation, and suppression.

Several psychological defense mechanisms and coping skills can be employed to quickly separate unpleasant events, actions, or thoughts. Suppression, for example, is the act of consciously blocking undesirable ideas, while compartmentalization is the process of dividing life into independent sectors (Gori et al., 2020; Zhao & Ding, 2019). These defense mechanisms can allow a person to move forward in their day without facing specific anxieties or challenges associated with the situation (Di Giuseppe et al., 2021).

In a literature review by Di Giuseppe et al. (2018), researchers noted that defense mechanisms commonly associated with negative attitudes often led to highly positive outcomes for patients diagnosed with cancer. It was determined that individuals employing mature defense mechanisms had less depression following their diagnosis and

an increased survival probability. However, the effect was not observed in patients with immature defense mechanisms except for denial (Di Giuseppe et al., 2018).

Similarly, in a study of frontline health workers during the Covid-19 pandemic, those implementing mature defenses reported a greater sense of personal accomplishment, ability to withstand or recover from stress, and lower emotional exhaustion, depersonalization, and perceived stress (Di Giuseppe et al., 2021). Similar results were found in a study of the general population by Gori, Topino, and Di Fabio (2020) and among a population of university professors conducted by Zhao and Ding (2019).

Successful dispatchers may employ mature defense mechanisms throughout their daily work, which could facilitate the ability to move from one call to the next quickly without dwelling on a particularly challenging or traumatic situation. It should be noted that these defense mechanisms do not negate the presence of stress, trauma, or symptomology associated with a cancer diagnosis (Di Giuseppe et al., 2018). The results were typically self-perceived rather than clinically observable, but there seems to be a pathophysiological interaction between the implementation of mature defense mechanisms and positive physical and psychological outcomes (Di Giuseppe et al., 2018; Di Giuseppe et al., 2021; Gori et al., 2020).

As Di Giuseppe et al. (2018) noted, many defense mechanisms develop from exposure to chronic stressors. While defense mechanisms can change with intervention, therapy, and even illness, it is generally understood that more mature defense

mechanisms originate from immature methods that have developed over time (Di Giueseppe et al., 2018; Di Giuseppe et al., 2020; Di Giuseppe et al., 2021; Gori et al., 2020; Zhao & Ding, 2019).

Personality Traits

Another consideration is whether emergency dispatchers pull from subclinical maladaptive personality traits. More commonly known as the Dark Triad, researchers have historically grouped the socially malevolent traits of Machiavellianism, narcissism, and psychopathy (Johnson, Plouffe, & Saklofske, 2019; Kaufman, Yaden, Hyde, and Tsukayama, 2019). Overall, individuals high in the Dark Triad traits tend to be callous, emotionally detached, lack empathy for those they exploit, engage in emotional manipulation, and are low in honesty-humility and agreeableness (Čopková & Araňošová, 2020; Johnson et al., 2019; Kaufman et al. 2019).

However, Kaufman et al. (2019) explained that all people have both light and dark personality traits, though we vary in the extent to which we consistently exhibit the light or dark patterns of thoughts, feelings, and behaviors in our daily lives. Historically, research has focused on how the dark personality traits have predicted aversive psychosocial outcomes like aggression, violence, low affective empathy, power, money, coercive behaviors, and self-enhancement (Grosz, Harms, Dufner, Kraft, & Wetzel, 2020; Kaufman et al., 2019). Interestingly, when presenting on a subclinical level, these traits are desirable for many helping professions (Čopková & Araňošová, 2020; Grosz et al., 2020; Kaufman et al., 2019). For example, a highly gifted surgeon may appear

emotionally blunted or even cold to the patient to maintain self-composure in the event of a traumatic injury or illness. Similarly, a subclinical presentation of inflated self-esteem associated with narcissism might translate to the bravery of a firefighter entering a burning building.

Čopková & Araňošová (2020) found that many members of helping professions exhibit some characteristics associated with the Dark Triad. The authors argued that while members of helping professions do have a desire to help those in need, they may also have a second motivation of power or control over a patient, client, or situation stemming from subclinical personality traits that facilitate success in the role (Čopková & Araňošová, 2020). Furthermore, many of these subclinical traits serve as protection against the traumatic experience of helping professions (Čopková & Araňošová, 2020; Grosz et al., 2020).

A person who has already experienced a stressful life may be more successful in implementing mature defense mechanisms when compared to someone who has no experience with traumatic events. Similarly, a person with subclinical maladaptive personality traits may be better suited for the work required of an emergency dispatcher. More experience using defense mechanisms could explain why the sample population inherently demonstrates a higher prevalence and severity of PTSD symptoms than the general public.

Regardless of the underlying reason for traumatic symptoms in this population group, the frequency and severity are significant findings in the study that warrants

further investigation. Additional research should be conducted into the underlying reasons, emphasizing qualitative narratives, adverse childhood experiences, personality traits, and coping mechanisms used by emergency dispatchers.

Job Satisfaction

This survey revealed many facets of emergency dispatching where employees are generally satisfied. Supervision, operating conditions, coworkers, and the nature of the job were usually seen as positive constructs despite some documented frustrations. Areas for improvement included communication, pay, promotions, fringe benefits, and contingent rewards. As expected, respondents were generally satisfied with their work and most working conditions, with a few exceptions.

Organizational Commitment

With the seemingly contradictory results on coworkers and supervisors, an area for future investigation lies in affective commitment. This study revealed that many telecommunicators like their coworkers, but the job was more difficult due to others' incompetence. It also found that while most respondents liked their supervisors and found them competent, they also felt that their own needs and emotions were not valued by management.

Odoardi, Battistelli, Montani, and Pieró (2018) identified three types of organizational commitment: affective, normative, and continuance. Affective commitment refers to the emotional attachment to the organization. Normative commitment reflects a sense of obligation to remain with the organization, while

continuance commitment is based on the costs associated with leaving (Odoardi et al., 2018).

Organizational commitment, especially affective commitment, would be a good area for future research among telecommunicators. Workers with a high level of affective commitment are driven to work hard, exert more effort, perform better, and make more purposeful contributions to the organization (Odoardi et al., 2018; Yukongdi & Shrestha, 2020). Affective commitment is also one of the best predictors of turnover intention and mediates the relationship between workplace incivility and burnout (Liu, Zhou, & Che, 2018; Ykongdi & Shrestha, 2020).

The emotional nature of emergency dispatching and the desire to be in a helping profession could influence affective commitment among telecommunicators. An emotional attachment could explain why turnover rates are not higher despite documented frustrations. Liu et al. (2018) suggested that managers can reduce employee roadblocks, encourage participation in employee assistance programs, and increase available resources to help cope with workplace stressors. Future research could incorporate qualitative and quantitative methods to assess affective commitment among emergency dispatchers and seek ways to improve it in U.S. PSAPs.

Working Conditions

As previously noted, telecommunicators have vastly different responsibilities and requirements during their workday based on the organization. Some PSAPs require emergency dispatchers to take emergent and non-emergent calls and handle radio traffic

and dispatching duties, while others have different positions for the roles. Some telecommunicators are also responsible for detention center ongoings and address the needs of the public, while others are not. Some agencies have a dedicated records department responsible for entering warrants, protection orders, missing persons, and other legal documents into a national system. In contrast, other agencies require telecommunicators to do these tasks.

Despite the different task requirements in a PSAP, some similarities should be noted. All emergency dispatchers work indoors, have high levels of social contact, and are exposed to distracting and uncomfortable sounds and noises. All telecommunicators work as response team members, encounter unpleasant, angry, or discourteous callers throughout the day, and are responsible for the outcomes of situations.

Almost all dispatchers are required to work on-site. However, the Arlington County Emergency Communications Center (ECC) in Virginia became one of the first centers in the nation to implement remote emergency dispatching options in 2020 (Larson, 2021). The change was a costly endeavor for Arlington County ECC, and the services have been limited to fire dispatching due to inherent privacy issues with law enforcement (Larson, 2021). Still, call-takers can log in remotely and process emergent and non-emergent calls. The move demonstrates a potential for remote work options in the future.

It is difficult to make specific recommendations for improving job satisfaction in this area, but it is something to investigate further. Researchers may want to consider

qualitative work to determine what responsibilities the telecommunicators have and make suggestions for improving working conditions based on those results.

Turnover Intention

There are many aspects of emergency dispatching that the employer cannot modify. These include the number of calls, types of calls received, and the requirement for 24-hour coverage within the center. However, based on the results of this study, there are a few areas for consideration to reduce the turnover intention rates among emergency dispatchers. Specifically, employers might consider increasing pay, fringe benefits, contingent rewards, and improving communication. Increasing the benefits of maintaining employment will subsequently increase the cost of finding a new job elsewhere (Ramlawati et al., 2021).

There are two competing theories on increasing salary to reduce turnover intention (Ryu & Jinnai, 2021). The first follows the Efficiency Wage Model. This model states that higher wages result in job satisfaction and increased retention (Yellen, 1984). The second theory suggests that wage is an indicator of competitiveness and superiority, allowing employees to remain with their current organization or find better-paying options in the community (Ramlawati et al., 2021; Ryu & Jinnai, 2021). However, this theory also suggests that employees stay in their workplace if their pay is higher than or equal to the opportunity cost offered by alternatives while holding other conditions constant (Ramlawati et al., 2021; Ryu & Jinnai, 2021).

This second construct presents a problem for PSAPs in the United States. Unlike

law firms, retail shops, or other fields of employment, there is typically only one PSAP for any given geographical region, thus eliminating the opportunity for competition. While salary is a factor when considering an alternative career, constructs like flexible scheduling, benefits, and the nature of the work weigh more heavily on many minds. Often, there is a high cost for shift work, irregular schedules, overtime requirements, and emotional labor not found in other career paths. Emergency dispatchers may be willing to take a slight cut in pay for the luxury of a stable and reliable schedule or the opportunity to work from home in a low-stress environment. Relying on the Efficiency Wage Model (Yellen, 1984) is likely the best opportunity to reduce turnover intention for emergency dispatchers. The cost of leaving must outweigh the potential benefits for workers to increase retention in the company and the field.

Recommendations

Continue to Investigate Trauma

The quantitative nature of this study provided limited insight into how trauma could impact job satisfaction and turnover intention among emergency dispatchers. While it was determined that trauma does impact overall job satisfaction, a more surprising result was the prevalence of trauma symptoms among the population. This finding deserves much further investigation into the area. Future studies should investigate the prevalence of trauma symptoms and the source using qualitative and quantitative methods to contribute to the literature on the subject. Researchers may want to consider administering the Adverse Childhood Experiences (ACE) survey to help determine the

source of the trauma symptoms.

Reduce Emotional Labor

Further investigation should be conducted using scripted protocols to reduce emotional labor. Mastracci and Adams (2019) investigated the potential use of scripted protocols to minimize the emotional work among emergency dispatchers and found promising results. The study showed that when emergency dispatchers were comfortable using scripted protocols, surface acting (suppressing emotion to display an expected outward affect) was reduced significantly and led to decreased emotional labor (Mastracci & Adams, 2019). However, it was also noted that implementing scripted protocol could negatively affect emergency dispatchers if perceived as an invasion of their autonomy (Mastracci & Adams, 2019). The scripted protocols did not reduce turnover intention, but this is an area for further review.

Next-Gen 911

In addition to further investigating trauma among dispatchers, it is recommended that future research emphasize the impact of Next-Gen 911 (NG911) technology on telecommunicators. NG911 is not widespread in the United States, but it is in the testing phase among a few PSAPs in the country, and it is on track to be the next phase in emergency service. The National Highway Traffic Safety Administration (p. 2, 2022) describes NG911 as “a faster and more resilient system that allows voice, photos, videos, and text messages to flow seamlessly from the public to the 911 network.”

The impact of enhanced visual and audio information on emergency dispatchers

should be investigated in the future. Under NG911 technology, telecommunicators may be witnessing crimes in progress, view disturbing images sent to the system, and be more involved in traumatic experiences than those sent to the 911 network over traditional methods. These studies could start with the various testing PSAPs in the United States and should be conducted before the technology is widespread to prepare for any detrimental effects.

Increase Access to Mental Health Resources

One of the most concerning findings of this study was the prevalence of trauma symptoms among the sample population. The first step to address this problem is increasing access to and using mental health resources for emergency dispatchers. To begin with, all PSAPs should offer free counseling sessions through a full-service Employee Assistance Program (EAP) that provides more than just simple counseling sessions. Employees should be provided with ample information about the program and use it and contact information regularly to ensure they know the program is available. Attridge (2019) explained that EAPs in the United States first started in the 1930s, and today, all federal and state government workers and most large and medium-sized employers in the private sector have access to them.

EAP programs are not typically utilized well, nor are they appropriately advertised. “Free EAP” programs (counseling only) average less than 2 percent use annually (Attridge, 2019; Milot, 2019). Full-service EAP programs provide more integrated services and are used at an average of 4.5 percent annually (Attridge, 2019;

Nunes et al., 2017). Despite the limited use, the programs have reduced absenteeism, boosting morale, productivity, and retention (Abraham & Whittaker, 2018; Nunes et al., 2017).

One key issue with the EAP for first responders and emergency dispatchers is that employees must find time to work with a therapist. Still, it is not always practical for shift workers or those with unusual or extended working hours. Therefore, it is recommended that PSAPs consider incorporating telepsychology options to improve accessibility. Options include contracting with local providers who offer telepsychology or providing employees with access to subscription-based online counseling options.

Telepsychology

During the COVID-19 pandemic, isolation requirements increased the use of technology for psychological counseling (Coope et al., 2019). Telepsychology covers a range of services, including text messaging for appointment reminders, online coping skills, and synchronous or asynchronous counseling appointments (McCord et al., 2020). Synchronous meetings may be held via phone call, videoconferencing, instant messaging, or online chat, while asynchronous services are provided through message boards, email, or text (Cooper et al., 2019; McCord et al., 2020). Telepsychology services were effective, feasible, and cost-effective and had positive outcomes for diagnosis, treatment, and assessment across many populations (Cooper et al., 2019; Martin et al., 2020; McCord et al., 2020).

Counselors working with telepsychology have the option to practice in multiple

geographic regions (pending licensure) and can make their hours based on their own needs and those of their clients (Cooper et al., 2019; McCord et al., 2020). Telepsychology can help overcome barriers to in-person psychological services, including issues with transportation, childcare, illness or injury, or time away from work (Cooper et al., 2019).

Peer Support Program

One recommendation that shows some potential is to train those in leadership positions to recognize and adequately address the stress related to operational issues (Chapin et al., 2008). Many organizations have implemented a critical incident stress management team following critical incidents, as peer support is essential to recovery (Bundy, 2020; Klimeley et al., 2018). However, debriefings do not always include emergency dispatchers. Debriefs may occur when the telecommunicator cannot attend and are voluntary, so they may not reach the intended audience. The emphasis on peer support is designed to help participants feel less isolated, build trust, and more readily accept any assistance available (Bundy, 2020; Klimeley et al., 2018).

Replication of this program within individual departments could reduce on-the-job stressors. Bundy (2020) surveyed emergency dispatchers and found that social support was an essential construct for coping with stress. However, respondents in this survey reported more challenges with communication with friends or family outside the workplace due to confidentiality factors (Bundy, 2020).

Onsite Counseling

Another recommendation noted by Bundy (2020) is the addition of an on-site mental health counselor for emergency dispatchers or other first responders. This option was explored by Young et al. (2008) using a volunteer sample population. While the researchers found positive outcomes, they noted that additional research is needed to test for efficacy among telecommunicators. Fay et al. (2006) also included dispatchers in their study on treatment options for first responders and determined that an in-depth retreat showed successful outcomes despite being only five days in length. Incorporating an on-site mental health counselor has the added benefit of providing non-violent callers in crisis who are not a risk to themselves or others with an option to talk to someone quickly without involving a police officer.

Support Physical Health

Bundy's (2020) investigation also revealed that emergency dispatchers liked to exercise when time permitted but struggled to find time outside of work to engage in such activities. Exercise improves overall physical and mental well-being, and organizations directly benefit from implementing wellness programs (Abraham & Whittaker, 2018). As noted by Abraham and Whittaker (2018), studies show that for each $1 spent on wellness activities in the workplace, the company's average return on investment (ROI) is about $3.

Employers should consider offering exercise equipment appropriate for the position to support employee well-being. Under-desk treadmills, bicycles, or ellipticals

are great options that would not impede the duties of an emergency dispatcher. Stretching bands, small free weights, and even grip trainers could also be provided with minimal impact on required tasks.

Alternative solutions include providing employees with free gym passes, paid time to work out, or creating an exercise room within the PSAP before or after shift. These alternatives require sufficient budgeting and staffing and may be less realistic for smaller or more rural centers.

Healthy Eating Habits

Supporting healthier eating options for PSAPs with a more generous budget may be considered. Many emergency dispatchers are confined to the campus, building, or even the desk for the entirety of their shift. Some workers have no relief breaks during the workday. Meals must be prepared in advance of the workday or come from nearby sources, often out of vending machines, which are not the healthiest.

Organizations could consider further supporting employee wellness by offering healthy food options to working employees to encourage good physical fitness. Nanu et al. (2020) found that, among hospitality workers, employee meals served a critical role in employee retention and job satisfaction. Employee meals served as a non-monetary incentive and provided employers with an opportunity to further increase the ROI by providing healthy and nutritious food.

Increase Compensation and Rewards

The second recommendation based on this study is to increase compensation and

rewards for emergency dispatchers. This study showed that most respondents did not feel they were rewarded, recognized, or compensated appropriately for their work as emergency dispatchers.

When considering salary, the Bureau of Labor Statistics (2021a) found an average hourly wage of all occupations in the United States of $27.07 or $56,310 annually. The average hourly salary for Public Safety Telecommunicators in 2020 was only $22.02, with the median at $20.82 (Bureau of Labor Statistics, 2021a). Truck transportation dispatchers reported an average of $22.51 hourly, while protective service occupations working for local government (excluding schools and hospitals) averaged $30.86 (Bureau of Statistics, 2021a).

In 2020, less than 25 percent of all emergency dispatchers made equal to or more than the national average pay (Bureau of Labor Statistics, 2021a). While telecommunicators in California reported an average hourly wage of $46.27, those in Alabama only earned $12.46 (Bureau of Labor Statistics, 2021a). These low-end salaries are especially heinous. Aetna, Aldi, Amazon, Bank of America, Best Buy, Target, Chipotle, Costco, CVS, Hobby Lobby, and dozens of other companies offer at least $15.00 hourly to start, with many working to increase that amount in coming years (Rosenfeld, 2021). Less than $15.00 hourly for an emergency dispatcher is unacceptable.

Pay comparison is a relatively new contributor to job satisfaction (Drakopoulos, 2019). Historically, salary secrecy was encouraged by management and human resource professionals, but this mentality has recently shifted with the legislation requiring equal

pay for work despite gender, age, or other contributing factors (Cullen & Perez-Truglia, 2018; Sun et al., 2021). Drakopoulos (2019) noted that employees with lower relative pay tend to report lower job satisfaction and higher turnover intentions, but those with higher relative income did not report higher job satisfaction. It was also noted that job satisfaction depends on actual wages and relative wages earned. A 10 percent pay increase in a reference group's wages would require a 24.9 percent increase in the individual wages to provide the same level of job satisfaction (Drakopoulos, 2019).

It is recommended that each PSAP or agency carefully assess their current wages and benefits for emergency telecommunicators and adjust them accordingly to improve retention and increase job satisfaction within the agency. The accessibility of nationwide chains offering more than $15.00 hourly to start should be a discussion point when implementing any changes.

Conclusion

Emergency dispatchers have been grossly underrepresented in scholarly research, but there is a clear need for future investigation in the field. This study investigated emergency dispatchers' trauma, job satisfaction, and turnover intention. It was determined that there is a high prevalence of PTSD and vicarious trauma among emergency dispatchers, overall job satisfaction was remarkably ambivalent, and turnover intentions were slightly higher than average. While it was determined that trauma affected job satisfaction, neither PTSD nor vicarious trauma moderated the relationship with turnover intention among the sample population.

More importantly, this study contributed to the limited literature surrounding telecommunicators and created a baseline for future research. The prevalence and severity of trauma in emergency dispatchers were surprising but not unexpected. While more research is needed in the area, the results of this study should be used as justification to increase access to mental health resources for telecommunicators. Hopefully, it can also serve as support for reclassifying the position from administrative to protective personnel in the SOC.

References

Abraham, S. P., & Whittaker, B. (2018). Optimizing health outcomes through employee wellness programs. *International Journal of Science and Research Methodology, 10*(3). https://ijsrm.humanjournals.com/optimizing-health-outcomes-through-employee-wellness-programs/

Abuhashesh, M., Al-Dmour, R., & Masa'deh, R. (2019). Factors that affect employees job satisfaction and performance to increase customers' satisfactions. *Journal of Human Resources Management Research*, 1–23. https://doi.org/10.5171/2019.354277

Adams, K., Shakespeare-Finch, J., & Armstrong, D. (2018). An interpretative phenomenological analysis of stress and well-being in emergency medical dispatchers. *Journal of Loss and Trauma, 20,* 430–448. https://doi.org/10.1080/15325024.2014.949141

American Psychiatric Association. (2013). *Diagnostic and statistical manual of mental disorders* (5th ed.).

An, J., Liu, Y., Sun, Y., & Liu, C. (2020). Impact of work-family conflict, job stress and job satisfaction on seafarer performance. *International Journal of Environmental Research and Public Health, 17,* 1–14. https://doi.org/10.3390/ijerph17072191

Andersen, L. B., Boye, S., & Laursen, R. (2018). Building support? The importance of verbal rewards for employee perceptions of governance initiatives. *International Public Management Journal, 21*(1), 1–32.

https://doi.org/10.1080/10967494.2017.1329761

APCO International. (2018). *SOC Revision*. https://www.apcointl.org/government-relations/topics/soc-revision/

Association of Public Safety Communications Officials. (2009). *Project retains.* https://www.apcointl.org/resources/staffing-retention/project-retains/

Bakkal, E., Serener, B., & Myrvang, N. A. (2019). Toxic leadership and turnover intention: Mediating role of job satisfaction. *Revista de Cercetare si Interventie Sociala, 66*, 88–102.

Balogun, A. O., Andel, S. A., & Smith, T. D. (2020). "Digging deeper" into the relationship between safety climate and turnover intention among stone, sand and gravel mine workers: Job satisfaction as a mediator. *International Journal of Environmental Research and Public Health, 17*(1925). https://doi.org/10.3390/ijerph17061925

Baseman, J., Revere, D., Painter, I., Stangenes, S., Lilly, M., Beaton, R., Calhoun, R., & Meischke, H. (2018). Impact of new technologies on stress, attrition and well-being in emergency call centers: The NextGeneration 9-1-1 study protocol. *BMC Public Health, 18*(597), 1–9. https://doi.org/10.1186/s12889018-5510-x

Bedini, S., Braun, F., Weibel, L., Aussedat, M., Pereira, B., & Dutheil, F. (2017). Stress and salivary cortisol in emergency medical dispatchers: A randomized shifts control trial. *PLoS One,* 1–15. https://doi.org/10.1371/journal.pone.0177094

Beehr, T. A., Glaser, K. M., Beehr, M. J., Beehr, D. E., Wallwey, D. A., Erofeev, D., &

Canali, K. G. (2006). The nature of satisfaction with subordinates: Its predictors and importance to supervisors. *Journal of Applied Social Psychology, 36*(6), 1523–1547. https://doi.org/10.1111/j.0021-9029.2006.00070.x

Benuto, L., Singer, J., Cummings, C., & Ahrendt, A. (2018). The vicarious trauma scale: Confirmatory factor analysis and psychometric properties with a sample of victim advocates. *Health and Social Care in the Community, 26*, 564–571. https://doi.org/10.1111/hsc.12554

Berkeley City Auditor. (2019). *911 dispatchers: Understaffing leads to excessive overtime and low morale.* https://www.cityofberkeley.info/uploadedFiles/Auditor/Level_3_-General/Dispatch%20Workload_Fiscal%20Year%202018.pdf

Blevins, C. A., Weathers, F. W., Davis, M. T., Witte, T. K., & Domino, J. L. (2015). The posttraumatic stress disorder checklist for DSM-5 (PCL-5): Development and initial psychometric evaluation. *Journal of Traumatic Stress, 28*(6), 489–498. https://doi.org/10.1002/jts.22059

Bothma, C. F. C., & Roodt, G. (2013). The validation of the turnover intention scale. *SA Journal of Human Resource Management, 11*(1), 1–12. https://doi.org/10.4102/sajhrm.v11i1.507

Bovin, M. J., Marx, B. P., Weathers, F. W., Gallagher, M. W., Rodriguez, P., Schnurr, P. P., & Keane, T. M. (2016). Psychometric properties of the PTSD checklist for diagnostic and statistical manual of mental disorders-fifth edition (PCL-5) in

veterans. *Psychological Assessment, 28*(11), 1379–1391. https://doi.org/10.1037/pas0000254

Bowling, N. A., Wagner, S. H., Beehr, T. A. (2018). The facet satisfaction scale: An effective affective measure of job satisfaction facets. *The Journal of Business Psychology, 33*. 383–403. https://doi.org/10.1007/s10869-017-9499-4

Branson, D. C. (2019). Vicarious trauma, themes in research, and terminology: A review of literature. *Traumatology, 25*(1). 2–10. https://doi.org/10.1037/trm0000161

Bride, B. B., & Kintzle, S. (2011). Secondary traumatic stress, job satisfaction, and occupational commitment in substance abuse counselors. *Traumatology, 17*(1). 22–28. https://doi.org/10.1177/1534765610395617

Bundy, W. L. (2020). Emergency medical dispatchers: PTSD and preventing it. *Crisis, Stress, and Human Resilience: An International Journal, 1*(4). https://www.crisisjournal.org/article/12208.pdf

Bureau of Labor Statistics, U.S. Department of Labor. (2018). *2018 Standard occupational classification system.* https://www.bls.gov/soc/2018/major_groups.htm#43-0000

Bureau of Labor Statistics, U.S. Department of Labor. (2018). *Occupational Outlook Handbook, Police, Fire, and Ambulance Dispatcher.* https://www.bls.gov/ooh/office-and-administrative-support/police-fire-and-ambulance-dispatchers.htm

Bureau of Labor Statistics, U.S. Department of Labor (2021a). May 2020 national

occupational employment and wage estimates. https://www.bls.gov/oes/current/oes_nat.htm#33-0000

Bureau of Labor Statistics, U.S. Department of Labor. (2021). *Occupational Outlook Handbook, Public Safety Telecommunicators.* https://www.bls.gov/ooh/office-and-administrative-support/police-fire-and- ambulance-dispatchers.htm

Carleton, R. N., Afifi, T. O., Turner, S., Taillieu, T., LeBouthillier, D. M., Duranceau, S., Sareen, J., Ricciardelli, R., MacPhee, R. S., Groll, D., Hozempa, K., Brunet, A., Weekes, J. R., Griffiths, C. T., Abrams, K. J., Jones, N. A., Beshai, S., Cramm, H. A., Dobson, K. …Asmundson, G. J. G. (2018). Suicidal ideation, plans, and attempts among public safety personnel in Canada. *Canadian. Pychology/Psychologie Canadienne, 59*(3), 220–231. https://doi.org/10.1037/cap0000136

Chapin, M., Brannen, S.J., Singer, M.I., & Walker, M. (2008). Training police leadership to recognize and address operational stress. *Police Quarterly, 11*(3). 338–352. http://doi.org/10.1177/1098611107307736

Chukwudumebi, C. S., & Kifordu, A. A. (2018). The significance of fringe benefits on employee morale and productivity. *The Romanian Economic Journal, 68.* 78–92. http://www.rejournal.eu/sites/rejournal.versatech.ro/files/articole/2018-06-29/3514/5-kifondornou.pdf

Clark, K. *R.* (2019). Ethics in research. *Radiologic Technology, 90*(4). 394–397

Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods*

approaches (3rd ed.). Sage.

Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, quantitative, and mixed methods* (5th ed.). Sage.

Cooper, S. E., Campbell, L. F., & Barnwell, S. S. (2019). Telepsychology: A primer for counseling psychologists. *The Counseling Psychologist, 47*(8). 1074–1114. https://dor.org/10.1177/0011000019895276

Cullen, Z. B. & Perez-Truglia, R. (2020). The salary taboo: Privacy norms and the diffusion of information. *National Bureau of Economic Research.* https://doi.org/10.3386/w25145

DeFeciani, E. (2020, October 21). *Albany dispatch center staffing shortage is "another crisis".* CBS 6. https://cbs6albany.com/news/local/albany-dispatch-center-staffing-shortage-is-another-crisis

de Oliveria, L. B., Cavazotte, F., Dunzer, R. A. (2019). The interactive effects of organizational and leadership career management support on job satisfaction and turnover intention. *The International Journal of Human Resource Management.* 1584–1603. https://doi.org/10.1080/09585192.2017.1298650

de Vries, *P*. G. (1986). Stratified random sampling. *In Sampling Theory for Forest Inventory* (pp. 31-55). Springer, Berlin, Heidelberg.

Di Giuseppe, M., Ciacchini, R., Micheloni, T., Bertolucci, I., Marchi, L., & Conversano, C. (2018). Defense mechanisms in cancer patients: A systematic review. *Journal of Psychosomatic Research, 115*(2018).

https://doi.org/10.1016/j.jpsychores.2018.10.016

Di Giuseppe, M., Gemignani, A., Conversano, C. (2020). Psychological resources against the traumatic experience of Covid-19. *Clinical Neuropsychiatry*, *17*(2). 85–87. https://doi.org/10.36131/

Dores, A. R., Geraldo, A., Carvalho, I. P., & Barbosa, F. (2020). The use of new digital information and communication technologies in a psychological counseling during the COVID-19 pandemic. *International Journal of Environmental Research and Public Health, 17*(7663). https://doi.org/10.3390/ijerph17207663

Drakopoulos, S. A. (2020). Pay level comparisons in job satisfaction research and mainstream economic methodology. *Journal of Happiness Studies, 21*. 825–842. https://doi.org/10.1007/s10902-019-00111-z

Dunn, E. C., Nishimi, K., Powers, A., & Bradley, B. (2017). Is developmental timing of trauma exposure associated with depressive and post-traumatic stress disorder symptoms in adulthood? *Journal of Psychiatric Research, 84*, 119–127. https://doi.org/10.1016/j.jpsychires.2016.09.004.Is

Ehlers, A., & Clark, D. M. (2000). A cognitive model of posttraumatic stress disorder. *Behavior Research and Therapy, 38*. 319–345. https://doi.org/10.1016/S0005-7967(99)00123-0b

Ehlers, A. & Clark, D. M. (2008). Posttraumatic stress disorder: the development of effective psychological treatments. *Nordic Journal of Psychiatry, 62*(47). 11–18. https://doi.org/10.1080/08039480802315608

Etikan, I., Musa, S. A., & Alkassim, R. S. (2016). Comparison of convenience sampling and purposive sampling. *American Journal of Theoretical and Applied Statistics, 5*(1). https://doi.org/10.11648/j.ajtas.20160501.11

Erdfelder, F. F., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods, 39*(2). 175–191. https://doi.org/10.3758/BF03193146

Fasbender, U., Van der Heijden, B. I. J., & Grimshaw, S. (2018). Job satisfaction, job stress and nurses' turnover intentions: The moderating roles of on-the-job and off-the-job embeddedness. *Journal of Advanced Nursing, 75*. 327–337. https://doi.org/10.1111/jan.13842

Fay, J., Kamena, M. D., Benner, A., & Buscho, A. (2006). A residential milieu treatment approach for first-responder trauma. *Traumatology: An International Journal, 12*(4). 17-24. 255–262. https://doi.org/10.1177/1534765606294991

Finklestein, *M*., Stein, E., Greene, T., Bronstein, I., & Solomon, Z. (2015). Posttraumatic stress disorder and vicarious trauma in mental health professionals. *Health and Social Work, 40*(2). 25–31. https://doi.org/10.1093/hsw/hlv026

Foreman, T. (2018). Wellness, exposure to trauma, and vicarious traumatization: A pilot study. *Journal of Mental Health Counseling, 40*(2). 142–155. https://doi.org/10.17744/mehc.40.2.04

Fox, R. (2020, December 2). *911 center near full staff after virus spike*. Tribune

Chronicle. https://www.tribtoday.com/news/local-news/2020/12/911-center-near-full-staff-after-virus-spike/

Frankfort-Nachmias, C. & Nachmias, D. (2008). *Research methods in the social sciences* (7th ed.). Worth Publishers

Frederiksen, A. (2017). Job satisfaction and employee turnover: A firm-level perspective. *German Journal of Human Resource Management, 31*(2), 132–161. https://doi.org/10.1177/2397002216683885

Gardett, I., Clawson, J., Scott, G., Tracey Barron, M., Patterson, B., & Olola, C. (2016). Past, present, and future of emergency dispatch research: A systematic literature review. *Emergency Medicine Journal, 33*(9). http://dx.doi.org/10.1136/emermed-2016-206139.13

Golding, S.E., Horsfield, C., Davies, A., Egan, B., Jones, M., Raleigh, M., Schofield, P., Squires, A., Start, K., Quinn, T., & Cropley, M. (2017). Exploring the psychological health of emergency dispatch centre operatives: a systematic review and narrative synthesis. *Peer J.* 1–29. https://doi.org/10.7717/peerj.3735

Gori, A., Topino, A., Di Fabio, A., (2020). The protective role of life satisfaction, coping strategies and defense mechanisms on perceived stress due to COVID-19 emergency: A chained mediation model. *PLoS One 15*(11). 1–11. https://doi.org/10.1371/journal.pone.0242402

Grosz, M. P., Harms, P. D., Dufner, M., Kraft, L., & Wetzel, E. (2020). Reducing the overlap between Machiavellianism and subclinical psychopathy: The M7 and P7

scales. *Collabra: Psychology, 6*(1). https://doi.org/10.1525/collabra.17799

Groves, R. M., Fowler, F. J., Couper, M. P., Lepkowski, J. M., Singer, E., & Tourangeau, R. (2009). *Survey methodology* (2nd ed.). Hoboken, NJ: John Wiley & Sons.

Hales, T. W., Nochajski, T. H., Green, S. A., Hitzel, H. K., & Woike-Ganga, E. (2017). An association between implementing trauma-informed care and staff satisfaction. *Advances in Social Work, 18*(1), 300. https://doi.org/10.18060/21299

Hartley, T. A., Sarkisian, K., Violanti, J. M., Andrew, M. E., & Burchfiel, C. M. (2013). PTSD symptoms among police officers: Associations with frequency, recency, and types of traumatic events. *International Journal of Emergency Mental Health, 15*(4), 241–253.

Harris, J. I., Strom, T. Q., Ferrier-Auerbach, A. G., Kaler, M. E., Hansen, L. P., & Erbes, C. R. (2017). Workplace social support in job satisfaction among veterans with posttraumatic stress symptoms: A preliminary correlational study. *PLoS ONE, 12*(8), 7–11. https://doi.org/10.1371/journal.pone.0181344

Hayes, A. (2020). *Download.* The PROCESS macro for SPSS, SAS, and R. https://www.processmacro.org/index.html

Hilton, S. K., Arkorful, H., Martins, A. (2020). Democratic leadership and organizational performance: The moderating effect of contingent reward. *Management Research Review*, *44*(7), 1042–1058. https://www.emerald.com/insight/2040-8269.htm

Hoppock, R. (1935). *Job Satisfaction*, Harper and Brothers.

Johnson, L. K., Plouffe, R. A., & Saklofske, D. H. (2019). *Journal of Individual*

Differences, 40(3). 127–133. https://doi.org/10.1027/1614-0001/a000284

Kaufman, S. B., Yaden, D. B., Hyde, E., & Tsukayama, E. (2019). The light vs. dark triad of personality: Contrasting two very different profiles of human nature. *Frontiers in Psychology, 10.* 467. https://doi.org/10.3389/fpsyg.2019.00467

Kalogiannidis, S. (2020). Impact of effective business communication on employee performance. *European Journal of Business and Management Research, 5*(6). https://doi.org/10.24018/ejbmr.2020.5.6.631

Kindermann, D., Sanzenbacher, M., Nagy, E., Greinacher, A., Cranz, A., Nikendei, A., Friederich, H. C., & Nikendei, C. (2020). Prevalence and risk factors of secondary traumatic stress in emergency call-takers and dispatchers – a cross-sectional study. *European Journal of Psychotraumatology. 11*(1799478). 1–14. https://doi.org/10.1080/20008198.2020.1799478

Klimeley, K. E., Van Hasselt, V. B., & Stripling, A. M. (2018). Posttraumatic stress disorder in police, firefighters, and emergency dispatchers. *Aggression and violent Behavior, 48*. 33–44. https://doi.org/10.1016/j.avb.2018.08.005

Krakauer, R. L., Stelnicki, A. M., & Carleton, R. N. (2020). Examining mental health knowledge, stigma, and service use intentions among public safety personnel. *Frontiers in Psychology, 11*(949). 1–7. https://doi.org/10.3389/fpsyg.2020.00949

Kulikowski, K. & Sedlak, P. (2017). Can you buy work engagement? The relationship between pay, fringe benefits, financial bonuses and work engagement. *Current Psychology, 39.* 343–353. https://doi.org/10.1007/s12144-017-9768-4

Lanier, B. A. & Carney, J. S. (2019). Practicing counselors, vicarious trauma, and subthreshold PTSD: Implications for counselor educators. *The Professional Counselor, 9*(2). 334–346. https://doi.org/10.15241/bal.9.4.334

Larson, R. (2021, February 16. *Remote dispatching gives Arlington ECC an edge in operations, staffing.* Police 1. https://www.police1.com/police-products/communications/dispatch/articles/remote-dispatching-gives-arlington-ecc-an-edge-in-operations-staffing-NLq6QIp1nf9GH7Nr/

Learn-Andes, J. (2020, November 26). *Luzerne county 911 staffing shortages hurting morale, agency head says.* Times Leader. https://www.timesleader.com/news/811085/luzerne-county-911-staffing-shortages-hurting-morale-agency-head-says

Lee, T. W., Hom, P. W., Eberly, M., & Li, J. (2018). Managing employee retention and turnover with 21st century ideas. *Organizational Dynamics, 47*(2). 88–98. https://doi.org/10.1016/j.orgdyn.2017.08.004

Lee, H.W., Robertson, P.J., Kim, K. (2020). Determinants of job satisfaction among U.S. federal employees: An investigation of racial and gender differences. *Public Personnel Management, 49*(3). 336–366. http://doi.org/10.1177/0091026019869371

Lee, X., Yang, B., & Li, W. (2017). The influence factors of job satisfaction and its relationship with turnover intention: Taking early-career employees as an example. *Anales de Psicología.* https://doi.org/10.6018/analesps.33.3.238551

Levanon, G., Abel, A. L., Rong, C., (2021). Job Satisfaction 2021. *The Conference Board.* https://www.conference-board.org/research/job-satisfaction/job-satisfaction-2021-report

Lilly, M. M. & Pierce, H. (2013). PTSD and depressive symptoms in 911 telecommunicators: The role of peritraumatic distress and world assumptions in predicting risk. *Psychological Trauma: Theory, Research, Practice, and Policy, 5*(2). 135–141. https://doi.org/10.1037/a0026850

Liberman, A., Pole, N., Otte, C., Yehuda, R., Mohr, D., & Neylan, T. (2006). Predictors of posttraumatic stress in police and other first responders. *Annals of the New York Academy of Sciences, 1071*, 1–18. https://doi.org/10.1196/annals.1364.001

Lopez-Martin, E. & Topa, G. (2019). Organizational culture and job demands and resources: Their impact on employees' wellbeing in a multivariate multilevel model. *International Journal of Environmental Research and Public Health, 16*(3006). 1–17. https://doi.org/10.3390/ijerph16173006

Ma, C. C., & Burchfiel, C. M. (2017). Officers: Gender Differences, 41(4), 645–662. https://doi.org/10.1007/s12103-016-9342-x.Highly

Maguire, B. J., O'Meara, P., O'Neill, B. J., & Brightwell, *R.* (2018). Violence against emergency medical services personnel: A systematic review of the literature. *American Journal of Industrial Medicine*, *61*(2), 167–180. https://doi.org/10.1002/ajim.22797

Marmar, C. R., McCaslin, S. E., Metzler, T. J., Best, S., Weiss, D. S., Fagan, J., Mesfin,

D., Woldie, M., Adamu, A., & Bekele, F. (2020). Perceived organizational culture and its relationship with job satisfaction in primary hospitals of Jimma zone and Jimma town administration, correlational study. *BMC Health Services Research, 20*(438). 1–9. https://doi.org/10.1186/s12913-020-05319-x

Martin, J. N., Millán, F., & Campbell, L. F. (2020). Telepsychology practice: Primer and first steps. *Practice Innovations, 5*(2). 114–127. https://doi.org/10.1037/pri0000111

Mastracci, S. H., Adams, I. (2019). Emotional training in emergency dispatch: Gauging effects of training protocols. *Annals of Emergency Dispatch & Response, 7*(3). https://www.researchgate.net/publication/340037537_Emotional_Labor_in_Emergency_Dispatch_Gauging_Effects_of_Training_Protocols

McCann, L., & Pearlman, L. A. (1990). Vicarious traumatization: A framework for understanding the psychological effects of working with victims. *Journal of Traumatic Stress, 3*(1). 131–149.

McCann, L., Sakheim, D. K., & Abrahamson, D. J. (1988). Trauma and victimization: A model of psychological adaptation. *Counsellor Psychologist, 16*. 531–594.

McCord, C., Bernhard, P., Walsh, M., Rosner, C., & Console, K. (2020). A consolidated model for telepsychology practice. *Journal of Clinical Psychology, 76*(6). https://doi.org/10.1002/jclp.22954

McHugh, M. L. (2013). The Chi-square test of independence. *Biochemia Medica, 23*(2). 143–149. https://doi.org/10.11613/BM.2013.018

Milot, M. (2019). *Stigma as a barrier to the use of employee assistance programs*. WorkReach Solutions. University of Maryland. http://hdl.handle.net/10713/8515

Miller, A., Unruh, L., Zhang, N., Liu, X. & Wharton, T. (2017). Professional quality of life of Florida emergency dispatchers. *International Journal of Emergency. Services, 6*(1). 29–39. https://doi.org/10.1108/IJES-01-2017-0001

Miller, M. K., Flores, D. M., & Pitcher, B. J. (2010). Using constructivist self-development theory to understand judges' reactions to a courthouse shooting: An exploratory study. *Psychiatry, Psychology and Law, 17*(1). 121–138. https://doi.org/10.1080/13218710902930309

Mira, M. S., Choon, Y. V., & Thim, Ch. K. (2019). The effect of HRM practices and employees' job satisfaction on employee performance. *Management Science Letters, 9.* 771–786. http://doi.org/10.5267/j.msl.2019.3.011

Mueller, C. W. & Kim, S. W. (2008). The contented female worker: Still a paradox? *Advances in Group Processes, 25*. 117–149. https://doi.org/10.1016/S0882-6145(08)25006-X

Nassiuma, D. K. (2000). Survey sampling. *Theory and methods*. Nairobi University Press, Nairobi.

National Emergency Number Association. (2018). *9-1-1 origin & history.* https://www.nena.org/page/911overviewfacts

National Highway Traffic Safety Administration's Office of Emergency Medical Services. (2022). Next Generation 911.

https://www.911.gov/issue_nextgeneration911.html

National Public Safety Information Bureau. (2020). *National directory of law enforcement administrators – local, state, federal.* https://www.safetysource.com/directories/

Navarro, D. (2020). *Assumptions of one-way ANOVA*. University of New South Wales. https://stats.libretexts.org/@go/page/4033

Newman, C., Eason, M., & Kinghorn, G. (2019). Incidence of vicarious trauma in correctional health and forensic mental health staff in New South Wales, Australia. *International Association of Forensic Nurses, 15*(3). 183–192. http://doi.org/10.1097/JFN.0000000000000245

Nanu, L., Cobanoglu, C., Yilmaz, I. H., & Dis, T. (2020). Impact of employee meals on employee satisfaction and hotel financial performance: An experimental study. *Journal of Hospitality Financial Management, 28*(2). https://doi.org/10.7275/0tft-v911

Nunes, A. P., Richmond, M. K., Pampel, F. C., & Wood, R. C. (2017). The effect of employee assistance services on reductions in employee absenteeism. *Journal of Business Psychology, 33*(6). https://doi.org/10.1007/s10869-017-9518-5

Odoardi, C., Battistelli, A., Montani, F., & Pieró, J. M. (2019). Affective commitment, participative leadership, and employee innovation: A multilevel investigation. *Journal of Work and Organizational Psychology, 35*(2). 103–113. https://doi.org/10.5093/jwop2019a12

Pickens, K. (2020, November 11). *911 director considering options to hire, keep more employees in dispatch.* The Owensboro Times. https://www.owensborotimes.com/news/2020/11/911-director-considering-options-to-hire-keep-more-employees-in-dispatch/

Pierce, H. & Lilly, M.M. (2012). Duty-related trauma exposure in 911 telecommunicators: Considering the risk for posttraumatic stress. *Journal of Traumatic Stress, 25*. 211–215. https://doi.org/10.1002/jts.21687

Qerimi, G. (2018). Analysis of top-down organizational communication in railway companies in the Republic of Kosovo from the employees' perspective. *Journal of Media Research, 12*(33). 74–91. https://doi.org/10.24193/jmr.33.5

Racke, W. (2019, June 26). *Dispatchers worked to exhaustion as Lake 911 struggles with staffing, employees claim.* NWI Times. https://www.nwitimes.com/news/dispatchers-worked-to-exhaustion-as-lake-911-struggles-with-staffing-employees-claim/article_8e5ac400-38a1-57bd-b3a7-5a078d8b3ff2.html

Reddy, V. B. & Gupta, A. (2020). Importance of effective communication during COVID-19 infodemic. *Journal of Family Medicine and Primary Care, 9*(8). https://doi.org/10.4103/jfmpc.jfmpc_719_20

Riou, M., Ball, S., Whiteside, A., Bray, J., Perkins, G. D., Smith, K., O'Halloran, K. L., Fatovich, D.M., Inoue, M., Bailey, P., Cameron, P., Brink, D., & Finn, J. (2018). 'We're going to do CPR': A linguistic study of the words used to initiate

dispatcher-assisted CPR and their association with caller agreement. *Elsevier, 13.* 95–100. https://doi.org/10.1016/j.resuscitation.2018.10.011

Roodt, G. (2004). *Turnover intentions*. Unpublished document. Johannesburg: University of Johannesburg.

Rosenfeld, J. (2021, October 13). *22 companies that hire at $15 an hour.* Yahoo! https://www.yahoo.com/video/22-companies-hire-15-hour-182539120.html?guccounter=1&guce_referrer=aHR0cHM6Ly93d3cuZ29vZ2xlLmNvbS8&guce_referrer_sig=AQAAAGnn6fs-vwwX8d3_Ana41b5LMmjrHmFncjEAhs_82aJaq10KdSG-f7q4Zaqrx4aOIo4Q_KB_ViYg5AFKsYwiHIJS9ljVbBSw_lQ1RK6hYD_nW9Ei3eq4Au92wAzfuy6xSJ17i-_Kr8C1XTlckgiI_KC8NCiqCSSa4L-5KiBecWXM

Rothausen, T. J. & Henderson, K. E. (2019). Meaning-based job-related well-being: Exploring a meaningful work conceptualization of job satisfaction. *Journal of Business and Psychology, 34*. 357–376. https://doi.org/10.1007/s10869-018-9545-x

Rowden-Foreman, J. W., Bennett, *M*. *M*., Rainey, E. E., Garrett, J. S., Powers, *M*. B., & Warren, A. *M*. (2017). Secondary traumatic stress in emergency medicine clinicians. *Cognitive Behavior Therapy*, *46*(6). 522–532. https://doi.org/10.1080/16506073.2017.1315612

Rucker, H. (2020, December 4). *Austin 911 dispatchers still experiencing a shortage while taking COVID-19 calls on top of daily emergencies*. KVUE.

https://www.kvue.com/article/news/health/coronavirus/austin-911-dispatchers-still-experiencing-a-shortage-while-taking-covid-calls-on-top-of-daily-emergencies/269-b72ae7f1-1cbf-4d02-89d3-f634fd52b8e4

Ryu, S. & Jinnai, Y. (2020). Effects of monetary incentives on teacher turnover: A longitudinal analysis. *Public Personnel Management, 50*(2). 205–231. https://doi.org/10.1177/0091026020921414

Saeed, I., Waseem, M., Sikander, S., & Rizwan, M. (2014). The relationship of turnover intention with job satisfaction, job performance, leader member exchange, emotional intelligence and organizational commitment. *International Journal of Learning & Development, 4(*2). 242–256, https://doi.org/10.5296/ijld.v4i2.6100

Scanlan, J. N., & Still, M. (2019). Relationships between burnout, turnover intention, job satisfaction, job demands and job resources for mental health personnel in an Australian mental health service. *BMC Health Services Research, 19*(62). 1–11. https://doi.org/10.1186/s12913-018-3841-z

Schnurr, P. P., & Lunney, C. A. (2016). Symptom benchmarks of improved quality of life in PTSD. *Depression and Anxiety, 33*(3), 247–255. https://doi.org/10.1002/da.22477

Segall, B. (2020, September 7). *COVID-19 causes rapid rise in 911 wait times, leaving some callers waiting on hold for minutes.* 13 WTHR. https://www.wthr.com/article/news/investigations/13-investigates/marion-county--911-call-center-dispatch-covid-19-coronavirus-wait-times-increase/531-

2d7171b5-a5ff-4eab-bd05-06467be23d4a

Shakespeare-Finch, J., Rees, A., & Armstrong, D. (2015). Social Support, Self-efficacy, Trauma and Well-Being in Emergency Medical Dispatchers. *Social Indicators Research, 123*(2), 549–565. https://doi.org/10.1007/s11205-014-0749-9

Silverstein, M. W., Lee, D. J., Seligowski, A. V., & Worley, C. (2018). Functional impairment: The role of posttraumatic stress disorder symptoms, negative mood regulation, and interpersonal problems. Traumatology. 1–7 https://doi.org/10.1037/trm0000164

Spector, P. E. (1994). *Job satisfaction: Application, assessment, causes, and consequences*. Sage.

Spector, P. E. (1997). *Job satisfaction: Application, assessment, causes, and consequences*. Sage.

Spector, P. E. (2020). *Job Satisfaction Survey.* http://paulspector.com/scales/our-assessments/job-satisfaction-survey-jss/

Stacho Z., Stachová K., Papula J., Papulová Z., & Kohnová L. (2019). Effective communication in organisations increases their competitiveness. *Polish Journal of Management Studies, 19*(1). https://doi.org/10.17512/pjms.2019.19.1.30

Stefurak, T., Morgan, R., & Burke Johnson, R. (2020). The relationship of public service motivation to job satisfaction and job performance of emergency medical services professionals. *Public Personnel Management, 49*(4). 590–616. https://doi.org/10.1177/0091026020917695

Steinkopf, B., Reddin, R. A., Black, R. A., Van Hasselt, V. B., & Couwels, J. (2018). Assessment of stress and resiliency in emergency dispatchers. *Journal of Police and Criminal Psychology*, *33*. 398–411. https://doi.org/10.1007/s11896-018-9255-3

Sun, S., Rosenfeld, J., & Denice, P. (2021). On the books, off the record: Examining the effectiveness of pay secrecy laws in the U.S. *Institute for Women's Policy Research.* https://iwpr.org/wp-content/uploads/2021/01/Pay-Secrecy-Policy-Brief-v4.pdf

The National Child Traumatic Stress Network. (2019). *Trauma types.* https://www.nctsn.org/what-is-child-trauma/trauma-types

U.S. Census Bureau. (2019) *QuickFacts.* https://www.census.gov/quickfacts/fact/table/US/PST045219

U.S. Department of Justice Federal Bureau of Investigations. (2017). *Uniform crime report.* https://ucr.fbi.gov/crime-in-the-u.s/2017/crime-in-the-u.s.-2017/topic-pages/area-definitions.pdf

U.S. Department of Transportation. (2017). *2017 National 911 Progress report*. https://www.911.gov/pdf/National-911-Program-Profile-Database-Progress-Report-2017.pdf

Vrklevski, L. P., & Franklin, J. (2008). Vicarious trauma scale [Database record]. Retrieved from PsycTESTS. https://doi.org/10.1037/t03119-000

Vroom, V. H. (1964). *Work and motivation.* John Wiley and Sons. New York.

Wallace, H. (2020, January 3). *911 metro dispatcher shortage in Nashville.* Fox 17. https://fox17.com/news/local/911-dispatcher-shortage

Wang, W. & Seifert, R. (2017). Pay reductions and work attitudes: the moderating effect of employee involvement practices. *Employee Relations, 39*(7). 935–950. http://doi.org/10.1106/ER-04-2016-0078

Weathers, F. W., Litz, B. T., Keane, T. M., Palmieri, P. A., Marx, B. P., & Schnurr, P. P. (2013). *The PTSD Checklist for DSM-5 (PCL-5).* Scale available from the National Center for PTSD at www.ptsd.va.gov

Wolomasi, A. K., Asaloei, S. I., & Werang, B. R. (2019). Job satisfaction and performance of elementary school teachers. *International Journal of Evaluation and Research in Education, 8(*4). 575–580. https://doi.org/10.11591/ijere.v8i4.20264

Wubetie, A., Taye, B., & Girma, B. (2020). Magnitude of turnover intention and associated factors among nurses working in emergency departments of governmental hospitals in Addis Ababa, Ethiopia: a cross-sectional institutional based study. *BMC Nursing, 19*(97). 1–9. https://doi.org/10.1186/s12912-020-00490-2

Yellen, J. L. (1984). Efficiency wage models. *The American Economic Review, 74*(2). 200–205. https://www.jstor.org/stable/1816355

Young, A. T., Fuller, J., & Riley, B. (2008). On-scene mental health counseling provided through police departments. *Journal of Mental Health Counseling, 30*(4). 345–

361. https://doi.org/10.1744/mehc.30.4.m125r35864213208

Yousef, D. A. (2017). Organizational commitment, job satisfaction and attitudes toward organizational change: A study in the local government. *International Journal of Public Administration, 40(*1), 77–88. https://doi.org/10.1080/01900692.2015.1072217

Yukongdi, V. & Shrestha, P. (2020). The influence of affective commitment, job satisfaction and job stress on turnover intention: A study of Nepalese bank employees. *Review of Integrative Business and Economics Research, 9*(1). https://journals.copmadrid.org/jwop/art/jwop2019a12

Zachariah, B.S. & Pepe, P.E. (1995). The development of emergency medical dispatch in the USA: a historical perspective. *European Journal of American Medicine, 2.* 109–112. https://cdn.emergencydispatch.org/iaed/pdf/SS13_EMD_in_USA_a_Historical_Perspective.pdf

Zito, M., Emanuel, F., Molino, M., Cortese, C. G., Ghislieri, C., & Colombo, L. (2018). Turnover intentions in a call center: The role of emotional dissonance, job resources, and job satisfaction. *PLoS One, 13*(2). 1–16. https://doi.org/10.1371/journal.pone.0192126

Zhang, X., Bian, L., Bai, X., Kong, D., Liu, L., Chen, Q., & Li, N. (2020). The influence of job satisfaction, resilience, and work engagement on turnover intention among village doctors in China: a cross-sectional study. *BMC Health Services Research,*

20(283). https://doi.org/10.1186/s12913-020-051540-0

Zhao, X. & Ding, S. (2019). Phenomenology of burnout syndrome and connection thereof with coping strategies and defense mechanisms among university professors. *European Journal of Investigation in Health Psychology and Education*, *2020*(10). 82–93. https://doi.org/10.3390/ejihpe10010008

Appendix A: Additional Search Terms

Additional search terms for this study were: posttraumatic stress disorder, PTSD, posttraumatic stress disorder and job satisfaction, PTSD and job satisfaction, secondary trauma, secondary trauma and emergency dispatchers, STS, secondary trauma and job satisfaction, secondary traumatic stress, emergency dispatchers, emergency call-takers, PSAP, dispatchers, 911 dispatch, 911 dispatchers and job satisfaction, 911 dispatchers and stress, 911 dispatchers and trauma, dispatchers and job satisfaction, turnover intention and emergency dispatchers, first responders, job satisfaction among first responders, standard occupational classification, SOC, job satisfaction, turnover intention, burnout, vicarious trauma, VT, work-life balance, first responder trauma, police trauma, firefighter trauma, job performance, cognitive model of PTSD, constructivist self-development theory, contingent rewards, scripted protocol, workplace benefits, fringe benefits, dispatch centers, dispatch shortage, dispatch staffing, types of trauma, trauma response, occupational commitment, next-gen 911, NG911, physical health in the workplace, workplace communication, employee assistance programs, peer support, peer counseling, health and wellness in the workplace, compensation, employee compensation, workplace wellness, EAP, mental health in the workplace, dispatchers and job satisfaction, workplace satisfaction, organizational communication, organizational health and wellness, employee meals, staffing solutions, employee dietary support, top down communication, vertical communication, workplace therapy, workplace counselor, and sedentary workplace.