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Sex Differences in Stress, Burnout and Coping in Emergency Medical Service Providers

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SEX DIFFERENCES IN STRESS, BURNOUT AND COPING IN EMERGENCY MEDICAL
SERVICE PROVIDERS

by

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Abstract

by

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The physical and psychological wellbeing of emergency medical service (EMS) providers is important for sustaining the overall model of emergency responding as well as providing consistent quality patient care. Despite the importance of the role, very little research has been undertaken for this occupational group. In particular, very little research on stress, burnout and coping have been undertaken. The failure to examine these areas fully has resulted not only in gaps in the literature but also practical failure for providers and the populations they serve. The assumption that EMS providers work under stressful circumstances which can result in burnout and which is affected by coping, necessitates research in this area. Even among the research that has been undertaken, sex differences between male and female providers in the areas of stress, burnout and coping has been neglected, despite the extensive general literature that points to sex differences in these areas and the continued male dominated environment of EMS. Using a convenience sample (n=1350) of EMS providers, this study found preliminary evidence to support sex based differences in stress and burnout for EMS providers. Although differences were found, the effects of these differences were not as great as had been expected. The resulting for coping behavior were mixed, with gender differences found for some coping behaviors (humor and substance abuse) but not for others (active coping and behavioral disengagement). The findings of this study suggest that sex is a valid basis for which to understand stress, burnout and coping in EMS providers and warrants continued exploration.

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Chapter 1: Introduction

Statement of the Problem

Police officers, firefighters, and emergency medical service (EMS) providers—collectively referred to as *emergency first responders* (EFR)—work for separate agencies and are tasked with separate and specific jobs, yet they operate as part of a relatively cohesive system that comprises the traditional 911 responders. Strong social and professional bonds create a brotherhood or family of EFRs. Despite their interdependence and camaraderie, EMS providers are often the forgotten or ignored[1,2] leg of the tripod, receiving much less funding, respect, and understanding than police and firefighters from institutional agents and the general public. Although these occupations have traditionally been male dominated, women have increasingly entered them with varying degrees of successful integration, although, overall, they still struggle for full equality with their male counterparts. Female EMS providers are the doubly forgotten and ignored members of EFRs because they work as EMS providers and operate in a traditionally male-dominated field.[3]

The physical and psychological well-being of EMS providers, particularly the needs of female EMS providers, receives the least amount of attention among the EFR groups. Very little research has been focused on EMS providers in general or as individuals, with most of the literature focused on prehospital interventions, procedures, and outcomes (see Allen et al., 2015;

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[1] A particular sore point for many NY based EMS providers is the failure at 9/11 memorial to specifically address the EMS providers who were killed working that day. Speeches and commemorations never forget to include police officers and firefighters who gave the ultimate sacrifice but they almost never make mention of the 39 EMS providers killed on that day.

[2] While there are currently national memorials for firefighters and police officers, there is no such memorial for EMS providers, despite the higher than average death and injury rate for EMS providers. As of 9/3/2015, H.R. 2274, the bill to establish a national EMS memorial, is still sitting in subcommittee.

[3] Female firefighters have received a great deal of attention (although not always positive) focusing on recruitment of women into the ranks and the fact that they are still for the most part a numerical minority. Female police officers have also received a good deal of attention in the literature as part of the overall plethora of information on police officers in general.

Balakrishnian et al., 2013; Boehm, 2013; Bosch et al., 2014; Chen et al., 2015; Crilly et al., 2015; Coppler et al., 2015; Coventry et al., 2015; Cutler et al., 2013 Halter, Lees-Mlanga, Snooks, Koenig, & Miller, 2000; Hankins et al., 2001; Kajino et al., 2014; Knight, Harper, & Smith, 2012; Krayeva et al., 2013; Manivannan et al., 2014; Marozas et al., 2007; Martin-Gill, Hostler, Callaway, Prunty, & Roth, 2009; Melton, Jain, Kendrick, & Deo, 2007; Middleton, Simpson, Thomas, & Bendall, 2014; Nakstad & Standberg, 2009; Nürnberger et al., 2013 Parwani et al, 2006; Phung et al., 2015 Pinchalk, Roth, Paris, & Hostler, 2003; Oteir et al., 2014; Pons & Markovchick, 2002; Poppe et al., 2015; Rausch, 2014; Scholten et al., 2015; Schoos et al., 2015; Weiss, Fullerton, Oglesbee, Duerden, & Froman, 2013). While patient sex is often a factor in these studies, provider sex is not. When it is considered, provider sex is often an after-thought instead of a key component of the conceptualization of the research, potentially missing a key aspect of provider functioning and well-being.

The psychological well-being of EMS, particularly as it relates to stress, burnout, and coping, is not only essential to the proper delivery of care and functioning of the EMS system, but also essential to the quality and effectiveness of all EFRs. This present study's primary research question addresses sex differences in stress, burnout, and coping among EMS providers, with the understanding that EMS is a stressful job, whose stress levels are increased for female providers based on sex differences in the overall experiences and understood within the framework of patriarchy as it relates to women working in male-dominated environments. Female EMS providers are hampered not only by working in a male-dominated work environment with a strong masculine ethos but also by sex-based stereotypes, expectations, and roles. Burnout and coping for female EMS providers are similarly affected by sex-influenced stereotypes, expectations, and roles.

Importance of This Study

It does not appear that most EMS agencies consider stress, coping, and burnout when they account for problems plaguing the profession as a whole or individual agencies. Although they superficially acknowledge their presence, there is no formalized approach on a practical level to address these factors. Although annual assessments of EMS skills are undertaken by a large number of agencies, few if any regularly evaluate providers for stress or burnout. In fact, there is currently no widely available EMS-specific measure to address these issues.

Among the most significant problems for most EMS agencies today are recruitment and retention, with 55% of agencies reporting that retention is a major issue (Patterson et al., 2010). William (2007) found about 15% of full-time employees and 23% of part-time employees leave the job annually and, overall, about one fifth of EMS providers are affected by turnover (Patterson et al., 2010). On average, turnover costs an EMS agency $71,613.75 per year or $6,871.51 per provider (Patterson et al., 2010). Issues of stress, burnout, and coping directly relate to long-term retention of employees. Employees who show high levels of stress, poor coping skills, and high levels of burnout are at an increased likelihood of leaving their jobs (Muheim, 2013). Research on stress, coping, and burnout focused on EMS providers in general is needed to understand clearly how they affect providers' daily effectiveness, as well as job commitment and turnover. That is, no current data on differences in turnover rates between male and female providers exist. Because very few studies to date have used provider sex as the key framework for understanding stress, coping, and burnout, little information is available for developing explanations of potential sex differences or similarities in recruitment, retention, and turnover.

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In addition to turnover rates, stress, coping, and burnout affect interaction with patients (Montgomery et al, 2013), somatic symptoms (Alexander & Klein, 2001, Berger et al, 2007), absenteeism (Cydulka, Emerman, Shade, & Kubincanek, 1997), and overall psychological well-being (Montgomery et al., 2013) for EMS providers. All of these issues are reflected in the overall work environment. EMS providers who exhibit high stress levels, poor coping skills, and high rates of burnout not only will not be as effective on the job but will also affect other employees and create a work environment with low morale. While this may be true for all EMS providers, the manifestation may be different for men and women, so remediation and re-education may need to be different.

The need to understand sex-based differences in stress, burnout, and coping for EMS providers is more important than ever, with the role of EMS at a crucial point in its evolution (Finn et al., 2013). EMS providers are increasingly taking active participatory roles in terrorism responses (Abatemarco, Beckley, Borjan, & Robson, 2007; Fernandez et al., 2011; Friese, 2007; Leiba et al., 2006; Ludwig, 2014; Markenson, DiMaggio, & Redlener, 2005; Sibson, 2012), active shooter scenarios as SWAT responders (Kammeyer, 2014b; Kastre & David, 2012; Lanphere, 2013; Lavery et al., 2000; Lickiss, 2011; Morrissey, 2011; Sanow, 2013; Schreiber, 2009), and the overall increased push toward community paramedicine, which would place these responders more heavily in the community (Bigham, Kennedy, Drennan, & Morrison, 2013; Choi, Blumberg, & Williams, 2015; Clark, Gleisberg, Karrer, & Escott, 2015; Drennan et al., 2014; Misner, 2005; O'Connor, 2015; Staffan, 2015; Tomek, 2012). All these situations are changing the environments in which EMS must function and thereby may increase stress, affect coping, and increase burnout for EMS providers in general and for female EMS providers,

specifically, considering the sex differences in these areas as well as the male dominance of the EMS occupation.

This study adds to the limited research on stress, coping, and burnout in EMS providers. It does so by addressing the neglected area of sex differences and may contribute to the approaches and programs tailored to meet the needs of these providers, particularly the needs of female EMS providers working in the masculine world of EMS.

General Findings of Previous Research

The general literature on stress (Aldwin, 2007; Cox et al., 2005; Hildebrand, 1984; Levi, 1998; May & Casazza, 2012; Mazzola et al., 2011; McLaren et al., 1998; Payne, 1999; Potok, et al., 2014), burnout (Ahola et al., 2006; Evans & Fischer, 1993; Leiter & Maslach, 2005; Maslach et al., 2001 McManus et al., 2002; Rubino et al., 2009; Thomas et al., 2014), and coping (Aldwin, 2007; Knoll et al., 2005; Kuiper, 2012; Panic, 2013; Welbourne et al., 2007) is extensive. There has been a great deal of focus on the prevalence and manifestation of these concept in the general population (Dewa et al., 2011, Gustafsson & Skoog, 2012; Jaramillo et al., 2011) as well as in specific populations, including the general first responder population (Armstrong, et al., 2014; Ballenger-Browning et al., 2011; Cowmann et al., 2004; don & Brett, 2011; Hartley et al., 2013; Hassan et al., 2014; Johnson, 2014; Keinan& Malach-Pines, 2007; Luquette, 2007; Popa et al., 2010). The examination of sex based differences in stress (Barbos-Leiker et al., 2013; Lovell et al., 2009; Miranda et al., 2007; Ojedokun & Idemudia, 2014; Turk et al., 2014), burnout (Brookings et al., 1985; Innstrand et al., 2011; Leiter et al., 2001; Norlund et al., 2010; Sliwinski et al., 2014) and coping (Ali & Askari, 2011; Bekker et al., 2001; Foster et al., 2014; Goldstein, 2006; Long, 1990; Lovell et al., 2009; Malterud et al., 2001; Morano, 2010; Riska & Ettorre, 1999; Sung Joon, 2007; Zeidner, 2006) have also been widely studied in

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the context of the general population. Some literature has been published examining the manifestation of sex differences in these areas among women who work in male dominated occupations (Bratt et al., 2014; Gachter et al., 2011;Goldenhar et al., 1998; Gonzalez-Morales et al., 2006; Pasciak,& Kelly, 2013; Ronald et al., 2006; Savikko, et al., 2008). The literature on EMS providers is significantly more limited. The majority of EMS provider focused literature focuses the technically aspect of the profession (Earles, 2009; Green, 2014; Khashaba et al., 2014; Kirkwood, 2009; Lamphere, 2013; Mausner et al., 1976; Oteir et al., 2014; Patterson et al., 2010; Powers, 2007) and while only a handful health and well being of the providers (Betlehem et al., 2014; Bostock et al., 2013; Devilly et al., 2006; Erich, 2008; Fjeldheim et al., 2014; Fullerton et al., 2006; Gayton & Lovell; Halpern et al., 2012; Iranmanesh et al., 2013; Jonsson et al., 2003; Moran & Britton, 1994; Spencer, 2006, Spyros et al., 2008, Sterud et al., 2008). Only a handful of studies focus specifically on EMS providers and stress (Blumenfield & Byrne, 1997; Cydulka et al.,1997; Fjeldheim et al., 2014; Hammer et al., 1986; Jonsson et al., 2003; Nirel et al., 2008; van der Ploeg & Kleber, 2003; Young & Cooper, 1995), burnout (Lalic et al., 2007; Moustous et al., 2010) and coping (Avraham et al., 2014; Essex & Scott, 2007; Scott, 2007).. The limited literature on sex difference in stress, coping and burnout in EMS providers strongly suggests sex based differences in experience and manifestation of stress, burnout and coping. (Loscar, 2010) but the empirical evidence to back of these assumptions is very limited.   To date no published studies have specifically sought to examine stress, burnout and coping in this context making the focus on this study unique.

General Implications

This study is based on the following fundamental statements:

1. The influence of individuals' sex has long been the context in which many concepts have been understood.

2. Concerning stress, burnout, and coping, years of research have indicated men and women do not experience them the same way (APA, 2010).

3. EMS has long been thought a stressful occupation, with numerous studies, both academic and nonacademic, continuing to emphasize this point (Bahrer-Kohler, 2013).

4. EMS is a traditionally male-dominated field with a strongly masculine culture (Loscar, 2010).

The implications of these four statements, when taken together, are that female EMS providers working in an environment where experiences and behaviors, including those related to stress, coping, and burnout, are judged by masculine standards. Such a situation provides a source of work-place conflict when these women engage in more feminine responses, using behaviors and responses not traditionally accepted as part of male responses. Such actions can increase stress, creating an inescapable circle of stress and coping behavior that does not work effectively for female providers. The result is an increased risk of burnout. The ultimate implication is that female EMS providers are forced to operate in a world that not only does not allow them to maintain their psychological well-being but ultimately may be causing them harm.

Addressing the issues surrounding stress, coping, and burnout in female EMS providers requires, first, the acknowledgment that these differences exist. The second requirement is attaining a full understanding of where the differences lie and how significant the effect of these differences is. Only with these two issues addressed can effective means to address the issues be implemented. Modification to work environment, increased training, and intervention can be

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implemented in ways that will be most effective in reducing stress and burnout and increasing

adaptive coping. Thus, addressing these issues concerning female EMS providers and the

differences between male and female responses will not only create a healthier work

environment for female responders but also contribute to improving the environment for male

providers and the system as a whole.

Framework for the Study

The primary purpose of this research was to examine differences in stress, coping, and

burnout in male and female EMS providers. The study was undertaken based on the notion that

stress, coping, and burnout not only affect the individual provider's well-being but also the

provider's effectiveness on the job. The notion that individual stress, coping, and burnout can

affect coworkers and the overall work environment is also a consideration. In particular, this

research was focused on female providers, with the understanding that, as women working in a

traditionally male-dominated occupation, female EMS providers are faced with unique

experiences. Not only will their perceptions of the sources and kinds of stress they face differ

from their male counterparts, but also the methods they use to cope with these perceived stresses

will differ as indicated by the general literature on stress (Araya et al., 2007, Bekker, Nijssen, &

Hens, 2001; Brion & Link, 2014; Matud, 2004) and coping (Daughtry & Paulk, 2006,

Giannakos, 2000; Matud, 2004). These differences will, in turn, affect the presentation of

burnout symptoms in female providers in a manner similar to those presented in the general

literature on sex differences in burnout. The present study expands what is known about stress,

coping, and burnouts as well as furthers understanding of sex differences in these areas by

answering the question: Is there a difference in stress, coping, and burnout in EMS providers,

based on sex, and if so, in what aspects of stress, coping, and burnout do male and female EMS providers differ? This study focuses on two main research questions:

RQ[1]: What is the difference in levels of stress, burnout and coping between men and women who work as emergency first responders?

RQ[2]: What is the relationship between provider sex (male/female) and stress, burnout and coping in EMS providers?

Chapter 2 begins with a focus on occupational descriptions of EMS providers. Most people do not understand the EMS system, often having confusion about the exact role of EMS and titles assigned to different levels of providers.[4] The need to clarify who EMS providers are, what they do, and some of the challenges they face is at the heart of this study. A brief history of the development of the EMS system is discussed to provide an enhanced understanding of the military influence, thus, male influence, on EMS. The history also helps to explain why EMS personnel have not received as much attention as other emergency first responders (EFR), such as police and firefighters. A description of EMS culture is also provided to support the notion of EMS as an occupation that values traditionally male characteristics and approaches to problem solving and work. The probable sources of EMS stress, based on the personality and habits of providers, are also discussed to indicate the unique issues faced by these providers and to further justify their examination as a separate group from other first responders.

Chapter 3 includes an overview of the theoretical foundation upon which this research is based. The chapter begins by discussing theories of sex differences. In particular, the concept of patriarchy (Ackers, 1990) is discussed in a general context, as well as in the occupational context, as the main theoretical context used to understand sex differences. The theoretical

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[4] For clear evidence of this one need only look to any mainstream media discussions of EMS involved stories in which highly trained and qualified EMT and paramedics are referred to as *ambulance drivers* and in which *EMT* and *paramedic* are used interchangeably.

models of stress used in this study are then addressed. The theoretical models of stress used in this study focus on both general stress and occupational stress. In particular, the transactional model of stress (Lazarus & Folkman, 1984), person-environment fit (Heoburn et at., 1997), and control theory of job stress (Payne, 1999) are addressed. The discussion of the theoretical models of stress is followed by discussion of the concept of burnout. Its origins, including emergence of the term and concepts of burnout from practical and clinical settings are addressed, followed by a discussion of the conceptual development. Further discussions address the key components of the current accepted model of burnout used in the research, including a focus on the theoretical conceptualizations of emotional exhaustion, depersonalization, and personal accomplish (the components of the Maslach Burnout Inventory). As burnout applies to the work place, the individual, organizational, and societal approaches are discussed. Individual and situational risk factors for burnout are also addressed, along with theoretical predications of the experience of burnout. Next, Chapter 2 address coping. The Lazarus and Folkman (1984) model is used as the basis for this research. The model is described, highlighting its strengths and some of its weaknesses. Finally, with each discussion of the theoretical conceptualization of stress, burnout, and coping, the notion of gender and patriarchy are discussed.

Included in Chapter 3 is a review of the existing literature on stress, coping, and burnout among EMS providers. The literature on police officers, correction officers, and firefighters is used in some sections to highlight the absence of similar literature concerning EMS providers, as well as to provide an indication of how such studies on EMS providers might be developed or what should be focused on based on some similarities with EFRs. The consideration of provider sex in relation to stress, coping, and burnout, when mentioned, is discussed in detail in this section.

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Chapter 4 includes detailed descriptions of the methodology and research design for this present study. Considering the limitations and information missing from previous studies, the methodological process of this study is addressed in extensive detail, including the rationale for each step in the process. The chapter addresses the research questions, null hypotheses, participants, data sources, data-collection procedure, unit of analysis, and measures. The validity and reliability of the measures, as well as their usefulness and limitations, are discussed. A general plan for statistical analysis is discussed in this chapter, serving as the method by which the contents of the Chapter 6 were obtained.

Chapter 5 contains analysis of the data and results. The analysis began with pre-analysis data-inspection techniques to ensure the data were appropriate for the analysis proposed. Descriptive statistics were conducted for all variables of interest. A power analysis was undertaken, followed by a correlation matrix of the variables to check for collinearity, which might influence the results. Data transformation, including the summing of scores to obtain scales and account for missing data, was completed. Analyses were completed to determine whether differences occurred in stress, coping, and burnout for male and female EMS providers and to provide preliminary understanding of where the differences occurred.

This dissertation concludes with Chapter 6, which provides a summary of the findings as they relate to the research questions and hypotheses. The strengths and limitations of this study are also discussed. Following a detailed interpretation of the findings is a discussion of the implication for policy making and recommendations.

Chapter 2: The Basics of EMS

The History of EMS

The origins of EMS. The first documented EMS providers were the Knights of Saint John in the 11th century. Founded in 1080, their mission was to provide for the sick, poor, and injured pilgrims of the crusades (Bell, 2009). Also known as the *Knights Hospitalier* or the *Knights of Malta*, they were trained by Arab and Greek doctors in first aid to help injured soldiers. They would provide basic treatment and then transport the injured soldiers to field medical tents for further treatment. These Knights wore a Maltese cross on their tunics, the cross that came to be associated with emergency medical services and, eventually, the Red Cross.

Many of the advancements in pre-hospital emergency care have come from the battlefield. In 1487, the Spanish were the first to use wagons to remove injured from the battlefield rather than letting the wounded who could not remove themselves die where they fell. These wagons would transport supplies to the front line and remove the wounded with no special accommodation or modifications. In 1792, Baron Dominique-Jean Larrey, a chief surgeon with Napoleon's French army, created the first formal army medical group and planted the roots of the modern EMS system. Larrey observed that wounded soldiers were not removed from the battlefield until after the fighting was over, leading to avoidable deaths. To counter this problem, Larrey's group included individuals who were trained and equipped to provide first aid on scene and return the wounded to field hospitals. Using carts and wagons specially equipped with stretchers, known as *flying wagons*, injured soldiers were removed in an organized and systematic fashion. In 1809, Larrey created the first practical ambulance wagon whose assigned purpose was for removal of casualties for medical treatment. This system was used and improved

upon through the many battles fought in Europe over the next 150 years. Most of the modern

European EMS systems are military in origin (Bell, 2009).

The history of EMS in the United States. The origins of EMS in the United States also

has its origins in the military, but in many respects has been much more heavily influenced by

civilian advances in medicine (Bell, 2009). Although a medical corps existed in the American

Army during the Revolutionary War, it was disbanded at the end of the war. The first formal

ambulance system did not appear in the United States until the Civil War. The large-scale

casualties on both sides of the Civil War prompted official agencies to begin to develop formal

organized systems to treat the sick and injured. The process included the creation of the position

of surgeon general. William A. Hammond, appointed in 1862, served as the first U.S. Surgeon

General. Many have considered Hammond to be the father of modern U.S. ambulance services

(Bell, 2009). In addition to general advancements of treatment facilities, Hammond moved the

responsibility for transport of wounded soldiers from line officers to a special medical corps.

Special wagons designed to transport the sick and injured were commissioned, with one wagon

assigned to every 150 soldiers.

The development of civilian EMS in the United States parallels its military development.

The first American civilian ambulance service was created in 1865, based at Commercial

Hospital in Cincinnati, Ohio. Although Cincinnati's was the first, the ambulance service at

Bellevue Hospital in New York City, created in 1869, became among the best known and served

as the foundation for one the largest EMS systems in the United States. Edward Dalton, first

leader of the Bellvue service, used his experiences as a Civil War surgeon to design and establish

a system with the most up-to-date equipment available at the time and encouraged quick

responses to calls for help. Among the successes of the Bellevue service was the ability to

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initiate a response within 30 seconds of receiving a call for help. Doctors based in the hospital were New York City's first EMS ambulance providers under Dalton's supervision. The staff was supplemented and eventually primarily staffed by residents-in-training through the 1930s. In 1870, Bellevue's ambulance responded to 1,401 calls, with the number increasing to 4,392 annually by 1891. Other ambulance services sprang up across the United States. These services were often created at the initiative of a single individual or small group of people who may or may not have had a formal hospital or medical affiliation. There was no consistency from agency to agency with respect to organization, treatment, operating standards, or scope of practice. Each agency acted as its own independent entity.

Through the early 20th century, these ambulance services continued to use technology to improve medical responses. The first motorized automobile replaced horse-drawn carriages in Chicago in 1899 and in New York City in 1900. The first mass-produced motor vehicle ambulance, the Model 774 Automobile Ambulance, was created in 1909 by James Cunningham Sons & Company in Rochester, New York, who had primarily manufactured carriages and hearses until then. The Model 774 had electric lights, a suspended cot, attendant seats, and a side-mounted gong that acted as a siren. By the end of WWI, most ambulances in the United States were motorized. The telegraph and, later, the telephone made summoning and dispatching ambulances, often with police acting as intermediaries, faster and more effective. As two-way radios became more popular after WWI, the system became even more efficient. With the outbreak of WWII, many doctors who had served on ambulances were called into service overseas. Funeral home workers, who had vehicles that could transport a person in a supine position, were called into service to treat the sick and injured. During the Korean War era, many ambulances, which were still routinely staffed with doctors and funeral home workers, began to

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carry an increased variety and quantity of medical supplies based on the realizations, largely garnered from military experience, that immediate availability of certain crucial equipment was critical to effective lifesaving. New technologies and procedures like cardiopulmonary resuscitation (CPR), defibrillation, and updated oxygen delivery systems made the treatment of patients in the pre-hospital setting more effective.

By the mid-20th century, ambulances services were very active in their individual communities and had a great deal to contribute to the overall health and well-being of people nationwide, but for them to contribute effectively, standards and organization were needed. In 1966, the National Academy of Science and National Research Council published a paper titled *Accidental Death and Disability: The Neglected Disease of Modern Society*. In this paper, which suggested that more Americans died from accidents than from any other cause and indicated the need for EMS and ambulances to help treat the sick and injured, pushing for the development of a formalized EMS system. They noted the lack of uniformity or standards in ambulance operation and that vehicles being used as ambulances were often inappropriately designed as well as ill-equipped to deal with emergencies. In addition, ambulance personnel were often inadequately trained. In fact, the publication noted that almost 50 percent of ambulance personnel at the time were trained as morticians, not as emergency medical providers. As part of these agencies' overall push to unite the concepts of public health, public safety, cardiac health, and trauma care, 11 recommendations directly related to out-of-hospital emergency medical services were made.

The Highway Safety Act (1966) formally established EMS as a division of the Department of Transportation (DOT). The Highway Safety Act gave DOT the authority to implement and develop training and educational standards and provided federal funding for 12

years to help implement the 11 pre-hospital recommendations of the National Academy of Sciences and National Research Council. In 1973, Congress passed Public Law 93-154, The Emergency Medical Service System (EMS) Act, which established a national agency whose goal was to improve emergency care, with a budget of $185 million. This Act was renewed and expanded in 1976 and then again in 1979. The national agency allowed "EMS folks . . . to try whatever it was that they managed to cook up" (Post, 2002, p. 8). The national agency established 304 local regions across the country, making uniformity and consistency nearly impossible.

By the 1980s, with the help of these legislative measures, EMS had become better at transporting people to the hospital quickly, but little progress had been made towards increasing survival rates and successful treatment. People still died, but they died in the hospital instead of on scene. This lack of advancement led the Reagan administration to undermine further EMS legislation when it came up for voting in the mid-1980s (Bell, 2009). Rather than attempt to continue to refine and improve the system, EMS funding was not renewed, so almost all federal funding for EMS was cut off. Many of the 304 regions established under the national agency disintegrated. However, a few of the regions attempted to continue to meet and advance EMS and provide a cohesive approach. An overall laissez-faire attitude took over once again, even as the number of EMS agencies and providers continued to increase (Post, 2002).

The history of women in EMS. For EMS, unlike other emergency first responding agencies, women had not only always been involved, but they have been involved in the front lines.[5] In the late 1800s, women like Dr. Emily Dunnning, whose life was later depicted in the

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[5] For other EFR occupations, while women have always played a role, the role tended to be more supportive and administrative then part of the actual frontline response.

movie *The Girl in White* (1952), served as ambulance surgeons[6] in New York and around the
United States, going out with the ambulance carriage to care for patients (Bell, 2009). It is
unclear how many of these early female EMS providers there were or how well they were
accepted. Reports of Dr. Dunning's first ambulance response were covered in the society pages
of the *New York Evening Post* rather than in the main pages (Bell, 2009), indicating the
uniqueness of her occupational role. The history books indicate, not only did Dunning become a
fixture of the ambulance response, but she was also well respected and accepted (Bell, 2009). A
number of women followed her. During World War I, women often served as ambulance
drivers, replacing men at the front, and by World War II, many ambulance companies had all
female crews operating on a regular basis (Bell, 2009). After World War II, many of these
women, like women in other occupation, gave the jobs back to the men returning from war, but a
small number continued to remain active in the early years of EMS, especially as volunteers
(Bell, 2009). By 2001, it was estimated women accounted for 31% of paid EMS providers (Bell,
2009), so they were no longer the novelty they once were.

EMS Today

Currently, many EMS organizations are in part or wholly integrated with fire suppression
(firefighting). More than half of urban EMS systems are part of fire suppression (Bell, 2009).
This is true largely because taxpayers are reluctant to fund stand-alone EMS services,[7] and many
of the partnerships between EMS and suppression were forged during the times when a large
amount of federal funding was available for EMS. When federal money for EMS was no longer
available, many EMS agencies found themselves reliant on their partnerships with fire

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[6] Dr. Dunning appears to have been the first, but it may be she is just the first to be documented as actively
participating in an ambulance response.
[7] NYC EMS was once a stand-alone organization, but as part of a funding issue, it was merged in 1996 with the Fire
Department of NYC (FDNY). It is just one example of many such mergers.

suppression to maintain their existence, so they found themselves existing as parallel divisions within these agencies instead of as equal partners. The financial situation for EMS agencies worsened with health-care changes that included funding cuts, low insurance, and Medicare/Medicaid payouts, making it extremely difficult for EMS agencies to stand on their own. Of the stand-alone EMS agencies, most are run by private corporations and through affiliations with private hospitals. The integration of EMS into fire-suppression agencies in the public sector has led to a number of problems, including the belief that "EMS does not and will never command the same amount of respect as traditional pillars of public safety, namely police and fire" (Post, 2002, p. 58). In many of these integrated agencies, EMS personnel are not afforded the same promotion opportunities, benefits, and pay scales as their suppression counterparts. These agencies see EMS as work for those who are only in it for the short term, whereas suppression is for those who want careers. In some agencies, EMS is considered a punishment for those who would otherwise be working as firefighters. It is not uncommon to see firefighters who have advanced EMS training (perhaps having advanced out of the agency's EMS division) failing to provide medical treatment, instead insisting on the supremacy of their firefighting role on scene and assigning medical treatment to someone else (Post, 2002).

Attempts to advance EMS have continued, despite the challenges. In 1996, the U.S. National Highway Traffic Safety Administration (NHTSA) issued the EMS agenda for the future. The agenda called for the future of EMS to include a community-based health-care management system fully integrated into overall health-care system. EMS was intended to be the public's medical safety net. However, despite this goal, EMS has largely failed to meet many of the aspects of the Agenda. A follow up in 2000 by the NHTSA found that not only was there no established national EMS education system but there was no master plan(U.S. National

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Highway Traffic Safety Administration, 2000). It is not simply that education levels and quality vary throughout the United States, but even the names assigned to provider levels and the scope of the practice they encompass vary greatly. There is no licensing standard across the nation. In fact, in some states, like New York, EMS is a certification, not a license. In many respects, most of the EMS systems have continued to exist and operate based on perceived need rather than actual formal analysis and research.

The same holds true for the health and well-being of EMS providers. Changes in approach and attitude are moving in the right direction, although slowly. While the number of studies focusing on EMS providers has increased over the last 20 years, they fall behind those focused on firefighters and police officers, the other parts of the core triangle of emergency first responders. The official agenda makes mention of improving the physical safety of EMS providers not their psychological well-being and functioning. EMS providers, both paramedics and EMTs, are at the forefront and are a crucial and integral part of the interactions of public safety, public health, and the overall healthcare system, yet they are often taken for granted. The modern ambulance services and their employees are part of a somewhat young system. For EMS to sustain, expand, and flourish, a great deal more attention needs to be applied to understanding how to best care for those who care for others, particularly in terms of issues of stress, burnout, and coping and understanding how male and female providers experience these issues differently.

Occupational Descriptions

According the U.S. Bureau of Labor Statistics (BLS; 2014), EMS is a field is growing at an above-average rate. In 2012, an estimated 239,100 EMS providers were in the United States, with the number expected to increase by over 55,000 by 2022 (BLS, 2014). The primary role of

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all EMS providers is the care and transportation of those who are sick or injured. The goal is to provide quick and competent evaluation and care in a variety of settings. EMS providers can work as part of a 911 response system, as well as in transportation of patients between specialty care and long-term care facilities. In addition to paid EMS providers, many areas also have volunteer providers.[8]

EMS providers need a minimum of a high school diploma with some form of additional training. Most training programs are considered non-degree-awarding post-secondary education programs, although some places do offer college credit for the course (BLS, 2014).[9] Most EMS providers work full time, with one in three working more than 40 hours a week (BLS, 2014). EMS providers work 7 days a weeks, 24 hours a day, and 365 days a year, with shifts usually lasting 8, 12, or 24 hours.

The 2012 median pay for EMS providers was $31,020 per year or $14.91 an hour (BLS, 2014). In general, this salary is lower than that of most health-care technicians. The salary is also lower than those for occupations considered similar by the BLS (20140.[10] In general, paramedics are paid more than EMTs. In most locations, EMTs' salaries are comparable to minimum wage, with paramedics earning slightly higher. Pay for EMS providers varies greatly by agency, location, and employer. Overall, EMS providers are seeing increases in salary, with an average of 5% increase in wages nationwide from 2013 to 2014 (Green, 2014).

In general, EMS providers have a higher rate of work-related illness and injury than the national average (BLS, 2014). The increased risk is due to the physical nature of the job, which

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[8] In many places, especially rural areas, EMS was once dominated by volunteers. The number of EMS volunteers has dropped dramatically over the last several years and continues to decline. One of the crises faced by the areas is the need to replace volunteers with paid personnel.

[9] Few EMT courses result in degrees, but an increasing number of the paramedic programs are degree granting, most often granting A.A. or A.S. degrees.

[10] Median pay in 2012 for an air traffic controller was $122,530, for a firefighter was $45,250, for a police officer was $56,980, and for a nurse was $65,470, careers the BLS (2014) considered to be equivalent.

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requires lifting and maneuvering patients and equipment, as well as having contacts with patients and their family members, who may assault EMS providers.

EMTs and paramedics. EMS providers include both emergency medical technicians (EMT) and paramedics. The difference between the two groups varies by state, with each state providing a different set of guidelines for differentiating the two levels. In general, EMTs provide basic emergency care. Paramedics provide more extensive pre-hospital care. Paramedics, a higher level, can do everything EMTs can do, with the addition of cardiac monitoring, administering more medications, having intravenous access and therapies, and implementing endotracheal intubation. Paramedics, because of their greater scope of practice, generally spend more hours training. At a minimum, EMTs receive about 150 hours of classroom training while paramedics receive a minimum of 300 hours (BLS, 2014). Patient training contact hours for paramedics are also greater than for EMTs. A degree-granting paramedic program can require 1,200 hour of training (BLS, 2014). Once certified, paramedics are often required to engage in continuing medical education for several hours annually to maintain their certification while participation in such education for EMTs is often voluntary.

Traits of EMS Providers

People are often drawn to occupations that fit not only their goals and lifestyles but also their personalities. In addition to being drawn to certain professions, certain personality traits allow a person to excel in his or her field. Personality traits have also long been thought to have a variety of influences on stress (Balducci, Fraccaroli, & Schaufeli, 2011; Besser & Zeigler-Hill, 2014; DeLongis & Holtzman, 2005; Dumitru & Cozman, 2012; Labbé & Fobes, 2010; Ogińska-Bulik, 2006; Rieckmann & Schwarzer, 2005; Zhou, Meier, & Spector, 2014), burnout (Hudek-Knežević, Kalebić Maglica, & Krapić, 2011; Polman, Borkoles, & Nicholls, 2010), and coping

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(Arntén, Jansson, & Archer, 2008; Baltes, Zhdanova, & Clark, 2011; DeLongis & Holtzman, 2005; Panic, 2013; Suls, David, & Harvey, 1996). Understanding the traits and personalities of EMS providers as an occupation can significantly contribute to the understanding of stress, burnout, and coping in EMS providers and aid in both prevention and intervention. The link between career choice and personality is important because "people who chose a career in emergency services have unique personalities that match their work. However, the very traits that make them great at what they do also makes them more vulnerable to stress and critical incident stress" (Mikolaj, 2005, p. 24).

A body of literature discusses which types of people may do better in emergency situations, but this literature often focuses on a singular emergency event, not a job responding to emergencies every day. Little formal examination of the personality traits common to EMS providers has been undertaken, but a good deal of information on the subject can be garnered from non-empirical literature. McEvoy (2004) asserted that "90 percent of the population lacks the personality characteristics necessary to perform well in emergency work" (p. 20).

The typical public representation of emergency first responders is that of individuals who are cool, calm, and collected under pressure (McEvoy, 2004). Mikolaj (2005) suggested that EMS providers specifically are detail oriented and quick to make decisions, need to be in control, have an obsessive desire to get the job done, show a level of compulsiveness, and set high standards for themselves. In addition, they are traditional, highly motivated by internal factors, action oriented, and in need of high levels of stimulation, being easily bored. They have a need for immediate gratification and have a strong desire to be needed. McEvoy (2004) added these individuals are often considered to be innovators and have a good deal of flexibility because of the unpredictable nature of their work. Many emergency first responders will describe

themselves as adrenaline junkies, defined as someone who is control oriented, pays attention to detail, is a traditionalist, has strong role identification, is action oriented, is a risk taker, is highly dedicated, is family oriented, has high expectations, and is strongly rescue oriented (McEvoy, 2004). In many ways, emergency responders are the ultimate problem solvers and fixers. While they are often seen as knowing what to do in every situation, their responses really result from training and personal characteristics that allow them to function effectively in their jobs (McEvoy, 2004).

One of the most crucial aspects of success for an emergency first responder is the ability to take and maintain control, even in the most chaotic situations. Emergency responders are expected to make swift and unwavering decisions among the ultimate forms of mayhem. In most instances, these individuals prefer to tell others what to do instead of being told what to do. This need for control can also prove problematic. For many, control makes them good at what they do but also makes them hard to supervise and makes it hard for them to work with others and accept criticism. The presence of so many control-oriented people will also eventually lead to conflict. The situation may arise in which there are too many generals and too few foot soldiers. The loss of control may be seen as the ultimate failure by emergency first responders and may have extreme emotional and psychological consequences (McEvoy, 2004). Control for emergency first responders also extends inward. Most first responders are extremely adept at controlling their own actions and emotions, both at work and in their personal lives. This type of inward control may play a significant role in preventing emergency first responders from seeking help when needed (McEvoy, 2004). Asking for help may be seen as a sign of lack of control and, ultimately, failure.

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For emergency responders, attention to detail may be lifesaving. The more quickly, efficiently, and comprehensively an emergency responder identifies and analyzes the details of a scene, the more effectively and appropriately he or she can respond. Attention to detail enhances emergency responders' safety and the safety of those around them, including attention to physical details of a scene or area, as well as verbal and nonverbal cues of those around them. Subtle or minute changes in the surroundings may indicate a larger, more significant change is about to occur. The disadvantage to attention to detail is that it may result in tunnel vision, during which the person notices the small details but does not apprehend the greater situation. The heightened attention to detail also comes with a heightened demand for perfection. Even the smallest imperfection will not go unnoticed. Noticing the small imperfections and the constant demand for perfection can cause damage to a person's self-esteem and overall psychological well-being (McEvoy, 2004).

Emergency first responders are traditionalist in that they operate under a system of rules that must be adhered to (McEvoy, 2004). Rules, routines, and operating procedure are at the heart of emergency responding and can result in strong resistance to changes in the normal routine and procedures that provide structure. Despite a strong desire for structure and adherence to rules, emergency first responders are also action oriented, both at work and in their personal lives. At work, this action orientation manifests itself as taking the lead and doing what needs to be done. Action orientation manifests in such extracurricular activities as riding motorcycles, skydiving, and participating in competitive sports (McEvoy, 2004). These activities may provide the adrenaline rush that responders have come to rely on as part of their everyday routines (McEvoy, 2004). These individuals may have such a high need for adrenaline and action that, in their absence, the individuals create it, including on the job, with practical

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jokes, pranks, exercise, and chores. They may, in fact, find themselves engaging in activities that they otherwise might not have, just to do something (McEvoy, 2004). These activities can be both constructive and destructive.

Most emergency first responders take pride in what they do and will show it publicly both on and off duty. McEvoy (2004) noted that "many carry a badge or identification while on duty [and] many wear a department jacket, patch or job shirt [off duty] and display decals or other markings on their personal vehicles to identify themselves as members of an organization" (p. 24). This pride and public displays of affiliation make the job 24/7 for many responders. In addition, they may put in increased time at work, with a reluctance to leave a scene, staying to ensure coverage and even staying while off duty to complete routine tasks. This time is often at the expense of family and friends. This sacrifice is often not apparent, and many will claim to be committed to their families and friends. However, they fail to realize their proclamation of commitment includes their fellow emergency first responders. In fact, many emergency occupations are family affairs, with brothers, fathers, mothers, sisters, wives, and children working side by side. Such emergency responders may also see an extended commitment to work as an extension of providing and protecting their own families. The notion of protecting family, as a father would, is a theme that runs strong among all EMS providers and helps feed the notion of patriarchy that continues to maintain EMS as a male-dominated occupation (McEvoy, 2004).

Chapter 3: Theoretical Framework and Supporting Literature

Theoretical Conceptions of Sex

Discussions of sex differences are conceptually linked to the women's liberation movement. The liberation and equality movements have made much progress over the last 50 years. Larger numbers of women now work in a wider variety of occupations, as well as in more diverse positions within the hierarchy and structures of the organizations. Although the numbers are promising, examination of sex-based differences in society and the workplace, specifically, still deserve attention (Bradely, 2013). The sheer increase in the number of women in the workforce does not tell the whole story. In fact, the numbers may only be an illusion of equality between the sexes. The increasing freedoms to choose that have been afforded women may not correspond to equality (Bradely, 2013), especially in the workplace. For many women, the glass ceiling is still very much firmly in place (Bradely, 2013). It is not only the presence of the glass ceiling but the experiences below this ceiling that represent an inequality between men and women in the workplace. It is about understanding the experiences of women in the workplace and how those experiences contrast with those of their male coworkers, especially in traditionally male-dominated occupations, which include EMS (Aasa, Brulin, Angquist, & Barnekow-Bergkvis, 2005, Gonsoulin & Palmer, 1997; McCann, Granter, Hyde, & Hassard, 2013).

The likely reason for the traditional male dominance is the roots of most modern EMS systems in military-based model for evacuation and treatment of the battlefield wounded, as well as its traditional linkage to fire suppression.

Sex and Gender

The sex distinction between men and women exist in all societies and across cultures, although the nature and extent of these differences varies (Bradely, 2013; Padavic & Reskin

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2002). Differences between men and women are generally examined in the context of sex and gender. Although many often confuse the terms and use them interchangeably, they are, in fact, two distinct, although linked and somewhat fluid concepts. Sex refers to one's biological make up in terms of chromosomes, hormones, reproductive organs, and external genitalia (Padavic & Reskin, 2002). Understanding of biological differences between men and women is fairly fixed, based largely on genetics and physical manifestations of the genetic sequencing, with men and women in direct contrast to one another (Amott & Matthaei, 1996).

However, gender is a sociological concept or social phenomenon that focuses on the relationships between men and women, and as a sociological concept, it is not a fixed concept (Bradely, 2013; Padavic & Reskin, 2002). *Gender* has been defined as "the varied and complex arrangements between men and women, encompassing organization of reproduction, the sexual division of labor and cultural definitions of femininity and masculinity" (Bradely, 2013, p. 16). Gender differentiation is the social process by which biological differences are created and exaggerated, leading to differences in activities, behaviors, and interests as gender specific (Padavic & Reskin , 2002). Gender is the sociocultural aspects of being male or female— culturally defined and socially constructed. The social construction of gender rewards those who follow and punishes those who do not (Padavic & Reskin, 2002). The concept of gender is bound to political concepts like power relationships and interactions as well as culture, ethnicity, and religion. While sex is something a person is born with, gender is something that develops through lived experiences.

Sex and gender are intrinsically linked because sex differences often serve as the foundation or starting point of the gendering process (Butler, 1990). Padavic & Reskin (2002) accurately pointed out that "biological sex is the foundation on which societies construct gender"

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(p. 5). Genital and genetic manifestations directly affect how gender is developed. Although not common in English, most languages are gendered. That is, at birth, once the biological sex is determined, the gendering process begins by describing the baby in the masculine or feminine versions of the language and engaging and interacting with the baby in gendered terms. Even though most of the English language itself is not gendered, Letherby (2003) cited numerous examples underlying gender meaning and difference in the English language, including an in-depth discussion of the misogyny of the English language (e.g., the word *bachelor* as opposed to *spinster*). By attaching the identification of male or female, individuals are motivated or forced to behave in certain ways. The examination of gender over time and culture also points to the fluidity of the concept and manifestation of gender. Furthermore, issues of menstruation, conception, pregnancy, breast feeding, and menopause are all related to the female biology but have a profound effect on the way both men and women view and do gender. While biology is not the sole influence on gender, it is an important component (Ehrlich-Martin & Jurik, 2007). The wide gap that separates men and women begins with biological sex and develops into gender as individuals experience their biological sex and the world around them. Messerchmidt (2004, as cited in Ehrlich Martin & Jurik, 2007) discussed gender as an embodied social practice that links mind and body as mutually influential. The two concepts are so intertwined and dependent that some modern feminists have argued that the sharp distinction once advocated is not appropriate because "the cultural and social processes which create gender are tied up with our physical beings" (Butler, 2013 p. 22). Therefore, sex and gender understood together serve as a valid basis for understanding the differences between men and women in an occupational setting. This study uses sex as the basis for examining stress, burnout, and coping in EMS providers.

The concept of "doing gender" or gendering takes this link a step further by acknowledging that individual men and women, despite the label of *male* or *female* at birth, can and do create and recreate the meaning of biology and social labels and how they are presented. *Gendering* is defined as "the process whereby gender differences are created and recreated within particular settings" (Bradely, 2013, p. 224). Gendering operates on the individual (micro) level with patterns of individual behavior; on the institutional or organizational (meso) level with these bodies establishing and enforcing gender rules, convention, and expectations; and on the societal (macro) level by being fed by the institutional level (Bradely, 2013). Thus, with few exceptions, sex and gender are intrinsically linked for the individual and for society, with sex being the born aspect and gender being the developed aspect, both of which affect workplace experiences.

Feminism

This present study is founded on many of the basic concepts of feminism and feminist research. Feminist theory asserts that women's experiences need to be understood in the context of sex and gender relationships. Feminist-based theory and research are largely based on the contrast of differences between men and women with the understanding that much of what is considered knowledge in the field of psychology, sociology, and criminal justice are based on male views and experiences and male interactions. Feminist ways of knowing or epistemology is different from that of men. Feminist theory and research have undergone several revolutions and modifications. The second wave of feminism not only considers differences but also focuses on determining the sources of oppression faced by women, placing them in a larger sociological context. For these feminists, differences represented inequality and disadvantage. However, feminism is not always about inequality and disadvantage alone (Letherby, 2003). Others have

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argued that even those women who might be considered privileged need to be included in the feminist discourse and the discourse needs to account for and include issue of social class, sexual preferences, and race. Even among women who are perceived to be among the privileged, sex differentiation has led to a sex-gender hierarchy in which males are usually favored over females and continue to maintain male advantage (Padavic & Resnick, 2002). Women who work in traditionally male occupations, like EMS, exist as a privileged group, often choosing to work in the male occupations for better pay and job security (Padavic & Resnick, 2002), while facing inequality and disadvantage because of the masculine environment and the expectations that accompany it.

Feminist theory indicates that, historically, women have been characterized in certain ways and these ways are presented in contrast to men. Masculinity reflects behaviors and traits typically associated with men. These can include things like assertiveness, aggression, individualism, and dominance (Barratt, Bergman, & Thompson, 2014). Femininity is behavior typically associated with women, including emotionality, warmth, affection, nurturing, and interdependence (Barratt et al., 2014). Women are traditionally characterized as sensitive, intuitive, submissive, docile, dependent, and emotional, occupying the status of the weaker sex and subject to easy exploitation (Letherby, 2003). Women who accept and adopt this model are considered well-adjusted and feminine while those who do not are labeled as problematic or troublemakers. In addition, historically, women have often been defined almost exclusively in relationship to the men in their lives (fathers, brothers, husbands, and sons) (Letherby, 2003). In society, the dominant group determines the path and norms of the culture, and they often do so in a way that ensures their continued dominance (Letherby, 2003). The dominant group not only sets the model for normative behavior but tries to ensure that non-normative behavior is not

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tolerated. For most of history, in most civilizations, the dominant groups have been male, a situation that often leads to women's concerns and issues being ignored or outright denigrated and to the exclusion and lack of recognition of women in many realms. Feminism is a "commitment to produce useful knowledge that will make a difference to women's lives through social and individual change" (Letherby, 2003, p. 4). This study provides empirically based research to expand this commitment to women who work in EMS with the work environment serving as a microcosm of society.

Patriarchy

Feminist theory can be used in numerous ways to understand difference between men and women, particularly the unequal treatment and devaluing experienced by women. Literally meaning 'the rule of the father,' the theory of patriarchy, understood in the broader context of feminist research, helps to explain the unequal experiences of women in society. It refers to men's control over women. Originally a Marxist concept, it was incorporated into the feminist literature to reflect "the general domination of men over women within the institutions and relations of society" (Bradely, 2013, p. 224). While, for most, patriarchy is often seen to exist in the private realm of the family, some have proposed that this type of patriarchy has declined. Although private patriarchy has declined, public patriarchy has continued to increase, especially in certain aspects of public life (Bradely, 2013). The workplace has continued to place women in subordinate positions. Kanter (1997) suggested that women are subordinated in the workplace by the assignment of certain cultural images like little sisters, iron maiden, and mother.

Sex and gender differences are often understood in the context of the theory of patriarchy. Most of the original work on patriarchy, particularly the work of early feminist scholars, is based on the Marxist concept of oppression and inequality, with gender acting as the

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basis for oppression and inequality (Bradely, 2013). Early Marxist feminists focused on women's labor. They focused on how and where women's labor was used and how it contrasted to men's labor, largely in the context of capitalism. Later theorists often attempted to keep the concept of oppression and inequality but framed them in terms of interlocking societal structures not limited to capitalism.

Gendering and Work or Occupation

Sex and gender influence every aspect of an individual's reality. Identification—self-identification and identification by others—as male or female affects how people speak, present themselves, and interact with others. It affects a person's aspirations and goals, as well as self-assessment. It affects dress, leisure activities, how others relate to the person, and how time is spent. A person's sex and gender affiliation, which emerge out of their sex, can affect not only the occupation he or she chooses but also his or her actions, behaviors, associations, and successes in that occupation. Work, like all social institutions, not only is gendered but also contributes to the gendering of individuals (Bradely, 2013). Gendering, when taken on all three levels as described by Bradely (2013), becomes a complete way of understanding the difference between men and women in the workplace and provides a framework for understanding the unique experiences of women. In the workplace, the gender pay gap contributes to this gendering process and the fact that most top executives and bosses are men (Bradely, 2013). Women today are equally if not more qualified than their male counterparts, but they still show less financial benefit (Bradely, 2013). The pay gap, while more prominent among older workers, is still present for younger workers, translating into significant differences in overall lifetime earnings and achievement. Bradely (2013) argued both horizontal and vertical segregation still exist between men and women in the workplace, with men and women concentrated in different

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types of jobs and women occupying the lower levels of most workplace structures. She further noted, even when men and women appear to be doing the same thing, they are, in fact, occupying "gender niches." For example, women represent 46% of the British labor market, of which 44% work part time for men, and the number of part-time workers is only 10% (Bradely, 2013). Even when women enter and remain in the labor market, once they have children, the financial benefit they receive from working is often offset by the high cost of childcare (Bradely, 2013.

Organizations themselves are a part of the gendering processing. Actual sex inequality in the workplace is varied. Construction of gender at work is largely determined by the organization of the workplace by employers, leadership within the organization, and external pressure placed on the organization. The same factors also directly affect actual and perceived sexual inequality at work. Gendered organizations construct divisions between men and women and construct symbols and imagery that express and justify these divisions and encourage work processes that maintain male dominance (Acker, 1990). These divisions work in conjunction with the individual's own idea of gender (Akers, 1990). Gendered organizations maintain "second generation discrimination,"[11] which reflects the barriers that women continue to face at work (Ehrlich Martin & Jurik, 2007), including gender hierarchies.

Gendering on the job often serves to confirm traditional sex and gender order. To fully understand the gendering of jobs and occupations, one must consider the concept of "fit work" and heteronormativity at work in the broader context of masculinity and femininity. Fit work is the idea that certain types of jobs are suitable for men while others are suitable for women (Bradely, 2013). The assignment of job fit based on sex is often rooted in cultural and social

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[11] *Second generation discrimination* refers to "covert or unconscious structural disadvantages" (Ehrlich Martin & Jurk, 2007 p. 48). The nature of this kind of discrimination makes it hard identify and document.

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traditions and frameworks. Many of the underlying ideas have deep historical roots with little empirical support for the assumptions. However, children are often exposed to these messages in overt and subtle manners by gendered toys and exposure to occupational gender segregation in books and the media (Bradely, 2013).

Gender theorists have often focused on the social learning process as playing a role in instilling occupational aspirations in children (Ehrlich Martin & Jurik, 2007). These early messages are carried through to adolescence, which is a time when individuals not only begin to choose a career path but begin to develop fully the senses of masculinity and femininity that are still fragile. Bradely (2013) pointed out that women's work often traditionally excluded work seen as posing a risk of illness or injury, as well as jobs that might expose them to "unrespectable and sexual matters" (p. 108). While some might argue that we have moved beyond these notions, to see that the notions linger although weakened, one need only look at the modern U.S. military, in which women only recently won the right to serve in forward combat positions and are still barred from certain positions in selected branches of the military. It is not uncommon that tools and equipment needed for certain jobs are often designed and maintained with men in mind. Furthermore, women are often expected to provide childcare. The notion of male childcare providers, especially for young children, often conjures up fears of abuse and inappropriate sexual conduct among people (Bradely, 2013). In addition, women are often seen as having more patience, making them better suited for childcare provision than men, as well as for repetitive and mundane tasks that might cause men to become easily bored (Bradely, 2013).

Heteronormativity refers to the notion that "heterosexual relationships are initiated and celebrated" in the workplace (Bradely, 2013, p. 108) and the heterosexual norms outside of work are mirrored in the workplace. Although home and work are considered separate spheres, they

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are, in fact, very much interrelated. Given the amount of time that people today spend at work, it is not surprising that as many as 70% indicate they have had a relationship with a coworker, representing the informal presentation of heteronormativity at work (Bradely, 2013). Heteronormativity is also represented in the workplace by an emphasis on "glamour and the hint of availability" (Bradely, 2013, p. 109). It is not surprising then that women often have issues surrounding work clothing that men do not. A woman may choose to wear a skirt to maintain femininity but must ensure the length and fit of the skirt do not undermine her position in the workplace. In other occupations, like policing, firefighting, and EMS, women are required to wear uniforms initially designed for men. This requirement clearly sends the message that the male body is considered the normative physique for the job. In addition, the inappropriate fit can create feelings of extreme dysfunction or can extremely impair women's work abilities. The physical discomfort they experience with the implication that their bodies are not the norm is also reflected in mental discomfort. Not only have the values of heterosexuality been translated into the work place, but also has paternalism. Male homosociality—the "all-boys club"—at work is a key component of sex and gender segregation in the workplace. Male managers are more likely to support and mentor male employees, and more socialization opportunities exist for these men than for women (Bradely, 2013). This male bonding can focus on a variety of topics and events but can often take the form of sex talk and low-level sexual harassment, especially among lower ranking employees (Bradely, 2013).

Sex/Gender and Work

Work includes all "activities that produce a good or a service," which "includes activities that produce goods and services for one's own use or in exchange for pay or support (Padavic &

Reskin, 2002, p. 1).[12] Before made illegal by federal statute, it was very common for workplaces

to openly label jobs as *male* and *female* and to openly segregate the workforce by assigning jobs

based on sex. Although illegal to do so openly, "most American can still readily distinguish

'women's' jobs from 'men's' jobs" (Padavic & Reskin, 2002, p. *x*). All institutions are shaped

and influence by sex- and gender-based assumptions. Gendered work can be realized as sexual

division of labor (naturally male and female jobs), devaluation of the labor of one sex group, or

overall construction of gender in the workplace (Padavic & Reskin, 2002). Women who work in

traditionally male-dominated occupations often face four areas that inhibit advancement: sexist

stereotypes, latent discrimination, insufficient recognition of the specific problems facing

women, and sexual harassment (Shadmi, 1993). The gendering of the workplace also influences

the expectations of workers and employers (Padavic & Reskin, 2002[13]). These influences are

both conscious and unconscious. Acker (1992) argued that women who work in male-dominated

occupations face a number of gendering processes that lead to unequal practices and treatment.

Included in these processes are institutional marginalization through symbols, images, and

constructs that legitimize masculinity; different managerial and organizational practices rooted in

male-dominated social hierarchies; sexual harassment; social isolation; and limited access to

mentoring. Ackers (1992) also suggested male-dominated institutions create environments in

which everything that is female is devalued and everything that is male is hyper-valued. Barratt

et al. (2014) found that female police officers who showed more masculine traits received more

mentorship than other women. Job description, pay scale, hours (full-time or part-time), and

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[12] The academic literature has distinguished between market work or paid work and non-market work or unpaid work although, in most of the industrialized world, the term *work* used in everyday speech describes paid labor (Padavic & Resnik, 2002).

[13] This includes using an employee's gender to get more service out of them or to get them to sell more.

work conditions are often designed with a single sex in mind. These conditions include materials and machinery used in the workplace (Padavic & Reskin, 2002).

The experiences of female EMS providers are both similar and different from those of female police officers. Unlike female police officers who, until relatively recently, had their roles in front-line law enforcement limited to minor offenses and offenders and often were relegated to desk positions (Barratt et al., 2014), female EMS providers (like female firefighters) were always expected to operate in the same manner and bear the same responsibilities as their male counterparts. In EMS, devices like stretchers, stairchairs, and even radio holders and straps are not designed with female providers in mind. Gender displays in the workplace involve marking the workplace as belonging to a single sex through sexual language and conventions as well as sexual material (pictures, calendars, and signs). Although such environments can occur in all workplaces, they are more likely to occur in blue-collar occupations that tend to foster *macho* attitudes with a focus on bravado and muscle (Padavic & Reskin, 2002). Lafontaine and Tredeau (1986) found that women who worked in traditionally male-dominated occupations reported exposure to sexual harassment at rates statistically significantly higher than for such rates among women in the general population. Not only do men bring sex or gender into the workplace, but women also do so. Women may consciously or unconsciously conform to these roles (Padavic & Reskin, 2002). For example, sex and the associated mother role can be used by women to defy employers.[14]

This study hypothesizes, that by using the concepts of gender, gendering and patriarchy that women who work as EMS providers, with EMS representing a traditionally male dominate occupation, will report higher level of perceived stress, increased burnout and poorer coping

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[14] In places I have worked, one quickly learns that indicating a need is based on a woman issue or a childcare issue, supervisors and managers immediately back off.

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when compared to male EMS providers. The definition and theoretical differences between sex and gender are complex. It is far easier to assess a person's sex than his or her gender, especially since gender is potentially fluid for the individual and society. Thus, this study was focused on participant sex to provide an initial window into potential gender differences previously not examined and gender issues that can be further studied.

Provider Sex and EMS

Most of the occupational description and literature on EMS culture and personality has not distinguished between male and female providers. Most authors appear to have assumed providers are male while not explicitly stating so. Whether female providers exhibit the same traits and hold to the same standard and occupational markers as their male counterpart is not clear. Few firsthand accounts of female EMS providers exist. In an *EMS World* 12-part series with an underlying theme of EMS as a male-dominated occupation, Loscar (2010) explored what it is like to be a female EMS provider. She wrote about her own experiences, as well as those of other women, and noted early in the series that "no one wanted to hear about hostile work environments, harassment or equal opportunity, you put up with the crap and did the job, or you went somewhere else" (2010). Comments like these are based on individual women's experiences that have led some to conclude that, even though EMS is considered a male-dominated profession, the stigma of sexual harassment present in other male occupations is not present at the same level among EMS providers (Babb, 2011).

Some authors have suggested the overall unsung nature of the role of EMS providers may contribute to its lessened effect. The statement of Loscar (2010) highlights that such behavior does exist, but for women in the early modern EMS system, it was more a matter of learning to deal with it and overcome it instead of filing formal complaints. That "I will overcome" attitude

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is really just a variation on the traits of the EMS personality description discussed previously. Doubts of the capabilities of women to function as effective EMS providers are still prevalent in EMS today, despite their increasing numbers. The question of whether women can do the job is not about the intellectual ability of women to assess patients and manage their care but about the physical aspects of the job, such being able to lift the necessary amount and navigate the large ambulance and being willing to get dirty (Loscar, 2010). However, despite the questioning of female providers' physical abilities in the male-dominated culture of EMS, Gonsoulin and Palmer (1997) found EMTs have no preference with respect to partner sex.

When dissecting the experiences of women in EMS, women tend to be harder on others women (Loscar, 2011a). Women in EMS have reported two things that bother them most about other female EMS providers is those who cannot lift and those who are openly sexually active or act in a promiscuous manner in the work environment. Rather than female providers mentoring other women in the field, they become their toughest critics. In the business world, this type of woman is known as the *queen bee* (Loscar, 2011a). Although their behavior may be part of a tough love or an "I survived and so will you" approach, ultimately, it does improve the status of women in EMS. Loscar (2011a) argued that women "don't want to be seen by any of the traditional female stereotypes" and do not want other women to play into the stereotypes, leading to the behavior.

Although women may have a great number of stereotypes to overcome because they are women, they may also have certain advantages over their male counterparts (Loscar, 2010). Loscar (2010) suggested, in general, people are more reluctant to be confrontational with a woman than a man, allowing female providers to gain people's trust more effectively and control

a situation. Furthermore, women are often seen as less authoritative and, thus, less threatening in otherwise tense situations (Loscar, 2010).

Some authors have also suggested, as women take on higher roles in EMS, including supervisory roles, the playing field will become more level (Babb, 2011), although support for this position is lacking. Loscar (2015) would probably disagree with this assumption based on her experiences because she indicated women are often missing from real EMS leadership. She stated women in EMS are "not speaking, not writing, not putting themselves out there"

Most women in EMS wear uniforms made for men (Loscar, 2011b). Although uniforms exist that are claimed to be made for women, often the adjustment made to accommodate the physical build of a female body are not sufficient to make the investment of extra money worthwhile. Instead, many women favor male uniform pants that tend to fit in the hips but are too big in the waste and men's uniform shirts that are problematic for women well-endowed in the bust line (Loscar, 2011b). Even work shoes can prove problematic for women (Armistead, 2015). There are physiological differences between the calves, ankles, and feet of men and women. Women in EMS often resort to male boots because of the lower cost and the lack of options for women.

That sex and gender are not strongly addressed in the literature is somewhat surprising. Feminist researchers seem to have missed a prime opportunity to explore key issues with respect to women who work in male-dominated professions by failing to pay sufficient attention to the first responder population. Although sex may be included in research, it is often part of demographic data but not a primary variable of interest. The few studies that have addressed sex beyond a simple demographic variable have found interesting and important differences between the experiences of men and women. Female firefighter have been found to have greater issues

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with coworkers than their male counterparts (Beaton, Murphy, Pike, & Corneil, 1997) and are affected a great deal by what the male-dominated culture might label as pranks or fraternal hazing (Shuster, 2000; Stern, 2001; Yoder & Aniakudo, 1995; Yoder & Aniakudo, 1996). Studies of female police officers have similarly found differences. Morash et al. (2006) found that female police officers are far less likely to be employed in smaller and rural departments. It has also been suggested (Morash et al, 2006) that female officers may be pigeonholed into certain situations in which there is more emotion, for example, dealing with rape and sexual assault victims, a situation that may, in turn, increase the risk of stressful experiences.

Whether the same trends hold true for EMS providers is unclear. Sexual joking and profanity are often associated with the masculine archetype present in male-dominated occupation (Morash et al., 2006) but often have not been explored in the context of the first responder population. Both men and women report being disturbed by such behaviors, but sexual harassment is a source of stress more commonly reported by women. Women who work in male-dominated occupations report higher stress levels related to harassment and gender-based discrimination and reported experiencing more adverse reactions to the harassment (Parker & Griffin, 2002; Santos, 2009), but this issue has not been specifically explored with the EMS population.

Theoretical Conceptions of Stress

According to Stinchcomb (2004), stress "has become as much a part of life in the 21st century as computers and cell phones" (p. 259). To some extent, stress is endemic to the human condition and has almost become an epidemic of sorts (Jones & Bright, 2001). Dewe and Cooper (2004) argued that stress is a "disease of our time" (p. 2). In many respects "stress has become a short-hand symbol for explaining much of what ails us in the contemporary world"

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(Roskies, 1983, as cited in Lazarus, 1990, p. 30). However, despite its common usage, little attention has been paid to what is really meant by *stress*. There is no common definition of the word (Jones & Bright, 2001), nor is there an agreement about the nature, causes, and/or effects of stress. There is even confusion among clinicians, academics, and laypeople about whether stress is good or bad. The word *stress* can be used as a noun, verb, and adjective and is usually used in a negative sense to describe a state of distress (Joshi, 2005). Most of what serves as the foundation of stress research comes not from the academics and research arenas but from everyday people in social and occupational situations, as well as clinical experiences (Levi, 1998; Maslach, 2003). For this reason, much of the research in the field, particularly related to occupational stress, is "clearly grounded in the realities of people's experience in the work place" (Maslach, 2003, p. 190), increasing its complexity. Although it increases complexity from a theoretical point, the practical need to continue to examine and study stress is indisputable, especially with respect to high stress occupations like EMS.

Sex differences and gender are thought to influence the stress experience, both in terms of how it is perceived and how it is reported (APA, 2010). Women tend to be more likely than men to report that they are under a great deal of stress, and they are more likely than men to report physical and emotional symptoms of stress (APA, 2010). These gender differences hold up across many different areas. When focusing on issues related to stress for women who work in male-dominated occupations like EMS, an additional aspect of stress experience may be specifically related not only to issues of gender in general but to cultural expectations and sexual harassment (Bell, Street, & Stafford, 2014; Brown, Campbell, & Fife-Schaw, 1995; Goldenhar, Swanson, Hurrell, Ruder, & Deddens, 1998; Holzbauer & Berven, 1996; Millegan et al., 2015;

Walsh et al., 2014; Wells, Colbert, & Slate, 2006). For this reason, gender is a pivotal component of understanding stress in EMS providers.

The history of the concept of stress. The exact origin of the term *stress* is unclear. Similar terms can be found in early Greek and Latin writings (Cooper & Dewe, 2004). In many early writings, the term *stress* was used broadly to define hardship, adversity, and affliction (Lazarus, 1999). Robert Hooke first used the term stress in the late 17th century to explain how man-made structures could be designed to avoid collapse when bearing heavy loads. Using the Law of Elasticity, Hooke used the terms load, stress, and strain to explain a structure's strength and stability (Lazarus, 1999). *Load* referred to external forces or demands placed on the structure, *stress* referred to the area to which the load was applied (the area affected by the force), and *strain* was the deformity of the structure that resulted from load and stress or the change that resulted from the interaction between load and stress. This concept would later be partially and somewhat incorrectly adapted by social scientists (Levi, 1998). If the body and mind are like machines, they too are subject to the wear and tear of machines. The mechanical wear experienced by machines was likened to the wear of life experienced by people. In the social sciences, load became the external stress stimulus, and strain became the stress reaction (Levi, 1998). Applied to people, stress began to be viewed as "an external demand placed on a bio-social-psychological system" (Cooper & Dewe, 2004, p. 3).

By the 19th century, the idea of stress as wear and tear on the body and mind, as well as the idea of modern life overloading individuals, became common with physicians, who labeled the experience *nervous exhaustion* (Cooper & Dewe, 2004). This exhaustion was marked by anxiety, unaccountable fatigue, and irrational fears. These symptoms were attributed to the failure of the nervous system to meet the demands of daily life, in other words, *stress*. The

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conceptualization of this disorder clearly suggested a social component to the symptoms. In fact, some argued these symptoms were the result of a" particular kind of social organization . . . as peculiar a product of the nineteenth century as the telegraph" (Rosenberg, 1960, as cited in Cooper & Dewe, 2004, p. 5). This thought process carried through to the 20th century with the idea that stress was a "sign of the individual's failure to successfully adjust to modern life" (Cooper & Dewe, 2004, p. 11). The failure to adjust was largely viewed as the failure of the individual in terms of how it affected production and the overall well-being of society.

The origins of modern stress research can be traced to physiologist Walter Cannon. In 1914, Cannon used the term stress in studies on homeostasis. *Homeostasis* was a term coined by Claude Bernard, who argued that, while it was the germ that did the damage to organisms, it was "the condition of the body and its state of health that either destroyed the germ or was destroyed by it" (Seaward, 2004, p. 45). *Homeostasis* can be defined as "the stability of physiological symptoms to maintain life" (Joshi, 2004, p. 4). Canon viewed homeostasis as "the regulation of the automatic system to self-regulate the physiological process" (Cannon, 1919, as cited in Cooper & Dewe, 2004, p. 14). The process was viewed as ability to change with the environment to maintain stability. Cannon defined *stress* as an "emotional state that had possible detrimental physical results on the organism" (Beehr & Franz, 1986). He coined the term "flight-or-fight response" to describe the phenomenon (Seaward, 2004). When an animal is faced with a threat, it has two options: It may choose to stand its ground and fight the threat, or it may choose to take flight, hoping to outrun the predator and escape the threat. The process involves four stages. During the first stage, a stimulus is sent to the brain from one of the five senses. During the second stage, the brain attempts to decipher the stimulus to determine whether it is a real threat or harmless. If the threat is deemed harmless, it is ignored. If the

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stimulus is determined to be a real threat, the brain sends a signal to the rest of the body that activates the nervous and endocrine system. During the third stage, the body's systems are in a state of arousal and will remain that way until the threat is over. During the fourth stage, the threat has been neutralized, either by the fight or the flight, and the body returns to its homeostatic state. Much of Cannon's work was theoretical, with later researchers confirming his theory by identifying and naming the actual physiologic components of the process. Although he did not apply the term *stress* to this process, today, it is a key component of what is commonly referred to as the stress response, specifically an acute stress response.

Following in the steps of Cannon, Hans Seyle began to research stress. Seyle is often credited with the beginning of the popularization of the modern concept of stress (Jone & Bright, 2001). Seyle began by examining animal's biological responses to what he termed *noxious stimuli*. His research was aimed at examining the alarm response that occurs when an organism is exposed to heat, cold, trauma, or nervous stimuli, as well as other sensations. While a number of researchers before Cannon noted such stimuli could cause an alarm response that resulted in physical and physiological changes, Seyle was first to determine that the response varied depending on the nature and extent of stimuli. He realized that the body needed a messenger capable of activating certain responses, which he called *first mediators* (Beerh & Franz, 1986). Unconcerned about the organism's actual awareness of the stressor, Seyle focused on the stages of the response.

Seyle's analysis, the pathogen reaction model, is a three-stage model that includes alarm, adaptation/resistance, and exhaustion (McEvoy, 2004). The process begins with the alarm phase, during which the body's natural processes are thrust into action. From a physiological perspective, heart rate and respiration increase, pupils dilate, muscles tense, and the body diverts

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blood oxygen and nutrients to the skeletal muscles and brain to appropriately respond to the threat. Seyle realized that biological beings that survived the initial alarm stage transitioned into a stage of resistance/adaptation. If the stimulus did not kill the being outright during the first hours or days of exposure, the body would seek to establish a regimen of resistance because the physical body cannot continually maintain the hormonal output and chemical reactions characteristic of the alarm phase without exhausting the organism's resources and causing greater harm. The organism would still show signs of hormonal and chemical response, but at levels that were lower than those present at the alarm phase. Throughout the resistance stage, the organism is learning about the stressor and the best way to adapt to the demand that the stressor is putting on its resources. Once an organism has learned to adapt to the best of its ability, it begins to engage actively in those adaptation strategies, entering the adaptation stage. However, the adaptation stage is also limited. The adaptive response can fail because of defects in the process, too much stress, or mismanagement of the system. Seyle compared the adaption stage to a bank account "from which we can make withdrawals but to which we cannot make deposits" (Seyle,1956 as cited in Monat & Lazarus, 1991). If the stimulus is not removed, it will continue to put pressure on the organism. Even if the adaptations initially appear successful, they will eventually begin to fail, and the organism will again begin to show signs of exhaustion. The body will continue attempting to adapt until it reaches the stage of exhaustion. At the stage of exhaustion, the organism will have used up all its reserves and can no longer respond to an alarm or anything else in an appropriate manner. Eventually, the body will fully succumb to the stressor, and negative effects, that is, disease, will result (McEvoy, 2004). Seyle argued that, once that stage is reached, the organism will likely never be able to return to its previous functioning. The development of disease can eventually lead to death. This three-stage model

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became known as *General Adaptation Syndrome* and provided the foundation for the understanding of the link between stress and death, as well as most of the more complex modern stress theories (Jone & Bright, 2001).

The definition of *stress*. A major problem for stress research is that there is no clear, agreed-upon definition or measurement of stress (Fletcher, 1988). There is often confusion between the concepts of stress and stressor (Jones &Bright, 2001; McEvory, 2004), and there is often a failure to differentiate among strain, pressure, and stress (Jones & Bright, 2001). Often, *stress* is used to describe both the stimulus and the response, creating more confusion (Jones & Bright, 2001). Discussions of stress span numerous areas of social and physical science, with most of the discussions concentrated in the fields of psychology, sociology, and medicine, each with its own approach to what stress is. Most researchers loosely define *stress* rather than providing specific, unchanging definitions (Beehr & Franza, 1986, Dewe, 2010).

Seyle first defined *stress* as something "nonspecific, that is the common result of demand upon the body," whose effect can be mental or somatic (Syles, 1956, as cited in Monat & Lazarus, 1991; McEvory, 2004). Under this definition, any interaction between an organism and the environment can be considered stress. Lazarus (1966) initially argued, because of the spread of the stress concept, stress should be viewed as a "collective term for an area of study" (p. 27). Lazarus and Folkman (1984) suggested stress should be viewed as many variables and processes. Others have modified Seyle's definition to include the concept of appraisal, adding that "an event in the environment is considered to be a stressor only if the organism's appraisal of it and its own resources suggest that it is threatening or disturbing" (Monat and Lazarus, 1991, p. 37). Not only is the addition of appraisal important, but so is the idea that there is the involvement of something threatening and disturbing.

Cox (1993) defined *stress* as a "psychological state which is part of and reflects a wider process of interactions between individuals and their work environment" (p. 29). For some, stress can be defined as "the level that is placed on [people's] mind and souls by the demand of their jobs, relationship, and responsibilities in their personal lives" (Seaward, 2004, p. 4). From a psychosocial perspective, *stress* can be defined as a "state of anxiety produced when events and responsibility exceeds one's coping abilities" (Seawards, 2004, p. 4). Holistic medicine defines *stress* as "the ability to cope with perceived (real or imagined) threats to one's mental, physical, emotional and spiritual well-being, which results in a series of psychological responses and adaptation" (Seaward, 2004, p. 5).

A *stressor* is "an event or situation that requires a non-routine change in adaption or behavior" (U.S. Department of the Army, 2003, p. 26) or "that which causes or promotes stress" (Seaward, 2004, p. 8). The stressor generally refers to the positive or negative event that produces the condition (Joshi, 2005; Beehr, 1998). *Strains* are the "individual responses to such stressor stimuli that are deemed to be harmful to themselves" (Beehr, 1998, p.6). Stress has been defined as a stimulus, response, or interaction, depending on who is defining it and for what purpose (Dewe, 2010). The U.S. Department of the Army (2003) defined *stress* as the "internal process of preparing to deal with a stressor" (p. 26) while Beehr (1998) described stress as "a situation in which stressors and strain are present" (p. 6).

Approaching stress. Not only is there lack of agreement about the definition of *stress*, but there is confusion over the extent to which stress is good or bad. Most early researchers viewed stress as a purely negative notion, called *distress*, characterized by anger, aggression, and destructiveness to one's overall health (King, 2005; McEvoy, 2004). Limited amounts and certain kinds of stress are now considered to be positive stress or Eustress. Eustress can be used

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as a motivator to prompt change and prepare the body for challenges, as well as to bring excitement and enjoyment (King, 2005, McEvoy, 2004). Eustress may actually promote psychological health (King, 2005). It has become increasingly clear to all who study stress that "too much can kill you; yet no one can survive without it" (McEvory, 2004 p. 1). However, no consensus exists concerning how much stress, good or bad, is too much stress. It may all depend on the type of stress, level of stress, and perception of stress, as well as the individual who experiences that stress and the context and environment in which the stress is experienced. In studying individuals' work and workplaces, studies focused on male and female EMS providers are essential for understanding the larger stress process.

Three general approaches are used in discussing stress, including acute stress (sudden and intense stress) and chronic stress. The first approach views stress as an environmental stimulus that can create tension (Stinchcomb, 2004). The second approach views stress as the way in which the body and mind attempt to adjust to stressful stimuli (Stinchcomb, 2004). The final approach views stress as neither a stimulus nor a response but as an interaction between environmental demands and personal resources (Stinchcomb, 2004). This final approach is the basis on which stress is understood for this study.

Models of stress and coping. The transactional model of stress serves as the underlying theoretical approach for understanding stress in this present study while occupational stress, in particular, is understood using the person-environment fit model (Alderfer, 1967) and job demand control model (Karasek, 1977). The core assumption of the transactional model is that stressful experiences are constructed through person-environment transactions. The model views "the person and the environment in a dynamic, mutually reciprocal, bidirectional relationship" (Lazaus & Folkman, 1984). The transactional nature of the model indicates the person and

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environment do not simply interact in a cause-and-effect manner but engage each other in an integrated manner that creates a state with original relational meaning via the process of appraisal. For the purposes of this study, the person represents EMS providers, and the environment is their work environment. The interaction between EMS providers and their work environments in relation to stress first depends on the appraisal of the stressor by individual providers and is then influenced by the social and cultural resources available. In the primary appraisal phase, EMS providers use their personal judgment, first, to deem an event stressful or not and, then, to determine whether it is positive or negative and controllable or uncontrollable, as well as how challenging it is, that is, the individual provider's perceived stress. The second aspect of the appraisal process addresses coping in terms of what the EMS providers believe they can do about the situation. The second aspect leads to differences in coping efforts (e.g., problem-focused coping as opposed to emotion-focused coping, discussed as part of the theoretical approaches to coping). The approach and method of coping are not only influenced by the transaction between person and environment but also by the person's work to change the transactional nature of the relationship.

As an offshoot of the general transaction model of stress, the person-environment (PE) fit theory[15] applies its concepts to the occupational setting. The PE fit theory focuses on how both the person and environment (in this case, the work environment) contribute to stress, that is, how they interact together to produce stress, with the stress resulting in a misfit between the two (Edwards, Caplan, & Van Harrison, 1998). The theory includes both objective and subjective components. The objective components include a person's attributes as they actually exist in the environment independent of the person's perceptions as opposed to the idea of a how a person

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[15] The notion of PE mismatch discussed here in terms of occupational stress is a hallmark of burnout discussed in the next section.

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perceives himself or herself and the situation. The two aspects are important considerations because, although the objective and subjective may be rooted in the same surrounding, they do not mesh completely because of the influence of factors like perceptual distortion, limited cognitive processing, and cognition resulting in a mismatch that manifests as stress (Edwards et al., 1998). This mismatch can manifest as a difference between needs and demands of the person or environment or a mismatch between needs and demands with abilities. When a mismatch between the persona and environment occurs, psychological, physiological, and behavioral consequences can emerge. For female EMS providers, the male nature of the occupational environment may contribute to increase stress, as indicated by this model, independent of any other environment mismatches and may create increased stress for women not present for male providers.

Similarly, the job demand-control model is focused on the individual and the environment (personal and situational factors), as well as perception (Spector, 1998). The model indicates that, as psychological demands in the work place increase and workplace autonomy/control decrease, the level of stress increases.[16] High-demand jobs normally produce high states of arousal because such arousal allows for demands to be met effectively, but this arousal is met with an environmental constraint, like low control. The arousal cannot be channeled correctly and effectively, particularly as it applies to coping, so unresolved strain builds, causing psychological, physiological, and behavioral damage (Dollard, Winefield, & Winefield, 2001). High demand and high control should result in great productivity (Dollard et al., 2001), but with high control also comes a deal of responsibility, a potential strain, added to the complexity of the model. The control aspect also directly affects coping choices, including

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[16] While the concepts are discussed here in relationship to stress, they are also key contributor to the developed of burnout discussed in the next section.

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the choice of using emotion-focused or problem-focused coping, with low control situations supporting the use of emotion-focused coping (Spector, 1998). EMS providers, in a manner similar to what has been described for other health care-providers (Spector, 1999), often work in high-demand jobs that allow little room for error, with varying but often low levels of control. Such EMS providers often have little control of certain aspects of their jobs, such as equipment, policy, and procedures, as well as the ultimate outcomes of their patients and their own long-term health. Further, paramedics may have a greater amount of control in their actions than do EMTs, but they also have greater oversight of their actions, taking away some of their autonomy, which may lead to differences between the two groups. The complexity of these issues in the EMS environment heighten the need to examine whether differences exist between male and female providers.

These models make both theoretical and intuitive sense in their application to EMS providers, specifically in beginning to understand the stress experiences of female EMS providers working in a male-dominated work environment. In addition, both of these theories are reflected in the models of burnout, which ultimately represents prolonged exposure to occupational stress, further supporting the notion that burnout must be understood as a separate but key component of the stress analysis of EMS providers in general and female providers working in a male-dominated occupation specifically.

Occupational stress. Work is not only a source of income but also provides people with a sense of self-esteem and identity (Lieter & Maslach, 2005). It can be a source of productivity, engagement, and happiness for those whose workplace fits them. When people are happy at work, the benefits can be unlimited, but when work is not a good fit with the person, profound negative consequences can result. The social, cultural, and ideological changes in the general

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work environment over the last 30 years has led to a workplace that has lost its human dimension, with increasing numbers of employees feeling underappreciated, underpaid, and exploited by the demands of work and the work environment (Lieter & Maslach, 2005), all of which can contribute to stress. EMS providers are not immune to the process. In fact, the second-class status of EMS providers relative to other first responders and their lack of respect as trained medical professionals from other professional and the public can serve to exacerbate these feelings. New technologies, like cell phones and tablet computers, keep individuals tethered to their workplaces even during personal time (Shaufeli & Enzmann, 1998). Even EMS providers have succumbed to this trend with online scheduling and online continuing education and training. There is also a push and pressure to constantly embrace and integrate new technologies. In general, downsizing, outsourcing, and budget cuts are looming threats for those who work in consumer markets, as well as social service agencies, education, and health-care facilities, including EMS organizations. Despite these cuts, the demands placed on workers in these fields continue to increase (Lieter & Maslach, 2005).

Occupational stress is addressed within a subset of the general stress literature that serves as the foundational assumptions of much of the burnout literature described in the next section. In some surveys, as many as one in six employees reported their jobs were very or extremely stressful, and some researchers have asserted that stress is one of the most widespread hazards in the workplace (Dewe, 2010;.McEvoy, 2004). Theories of occupational stress, such as the PE fit model and control-demand model, assume that varying amounts of stress people experience are related to their occupations. It further assumes that social arrangements and interactions with and at work are mediated through the processes of perception and appraisal (Levi, 1998). This applies not simply to the title associated with the occupation but the daily and repetitive

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functions and demands of the job and work environment. Because occupation is often linked to

social status, occupational stress may be part of the direct work-related stress (Wallace, Levens,

& Singer, 1988).

Although many people may think their jobs are stressful, researchers have suggested

certain occupations are correlated with increased stress experiences. In addition, general job

status and ranking may be associated with increased stress risk for lower status workers

(Fletcher, 1988). Thus, blue-collar workers may be at increased risk of occupational stress

because their work affords them little autonomy and control (Wallace et al., 1988). Although

various definitions of *blue collar work* exist (Wallace et al., 1988), in many respects and despite

attempted changes, EMS is generally still considered a blue-collar occupation.[17] Overall, there

are six areas considered at the heart of work stress: scheduling (the pace at which work occurs

and the timetable it occurs on, including shift work), roles stressors (ambiguity, conflict, and

overload), job security, interpersonal relationships at work, job content (meaningfulness and

personal responsibility of work), and autonomy (Hepburn et al., 1997). Each of these factors

represents an area directly related to the work of EMS providers.

In general, those who fall under the rubric of human service occupations, which includes

EMS providers, are considered the most vulnerable to stress, especially chronic stress

(Stinchcomb, 2004) and, as such, have been the subject of most burnout research, which is

intrinsically linked to occupational stress research. The stress vulnerability for human services,

especially professions like policing, nursing, and EMS, all considered helping professions, lies in

these workers being responsible for the lives of others and often facing unpleasant encounters

and disappointments (Stinchcomb, 2004). In these fields, the worker has little control over the

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[17] Similarly police officers, firefighters, and corrections offices are often classified as blue-collar workers (Wallace et al, 1988).

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circumstances that bring people to them or over the ultimate outcome for these people. Even if the ultimate outcome is positive, often, these workers are not aware of the positive endings (Stinchcomb, 2004).

EMS Stress

Stress has been widely studied among certain EFR groups. For police officers, the amount of research leads some to take for granted that policing is not only stressful but ranks high among the most stressful occupations (Anderson, Litzenberger, & Plecas, 2002). Research on police is clear that the high-risk emergencies or "lights-and-sirens" events like shootings and high-speed chases are not that common and most police work focuses on more mundane public relations interactions. Specifically, when officers are involved in these high-intensity low-frequency events, the support and assistance to meet both their physical and psychological needs are often more forthcoming than for the low-intensity high-frequency stressors of the mundane interactions (Stinchcomb, 2004). In some instances, low-frequency high-intensity events can actually help mitigate organizational stress a police officer might experience (Crank & Caldero, 1991).

Police officers often enter the profession with the understanding and expectation that they will face some form of work-related violence. What they often do not anticipate are the problems that might arise from micromanagement, administrative issues, and working with other officers (Stinchcomb, 2004). In fact, although it was once thought that police stress derived largely from violence and danger faced on the streets, current research has indicated the daily hassles are more stressful for police officers (Antoniou, 2009; Backteman-Erlanson et al,., 2013; Don & Brett, 2011. Numerous studies have shown that police stress is associated with absenteeism, burnout, job dissatisfaction, early retirement, attrition, increase in short- and long-

term illness, long-term disability, poor work performance, and even early death (Anderson, Litzenberger, & Plecas, 2002). A number of health issues have also been associated with police stress. Police officers have been shown to have elevated levels of cardiovascular disease and even premature death. Although police officers' stress has received a great deal of attention, the literature on stress for EMS providers is lacking. While police and EMS may share occupational similarities and, thus, may experience similar sources of occupational stress, the occupational differences that exist do not allow for the assumption that EMS stress is identical to police stress, necessitating independent research on EMS providers.

The theoretical literature has indicated EMS providers are affected by three subsets of stressors: environmental, psychosocial, and personality (Mitchell & Bray, 1990). Environmental stressors come from noise, dust and dirt of the workplace, temperature extremes, weather conditions, bystanders on scene, speed (i.e., pressure of a rapid response), working in confined spaces, lighting issues, and rapid decision making (Mitchell & Bray, 1990). Mikolaj (2005) suggested environmental stressors should also include use of sirens, cries for help, moans of pain, angry or threatening voices, emergency driving, traffic, crowds, hazardous materials, waiting for backup, low pay, conflicts with administration, threats of litigation, lack of respect from other health-care professionals, and the fact that most providers do not work in well-staffed or stocked facilities. Shelton and Kelly (1995) also included time pressure, paperwork, desire for advancement, heavy workload, decision making, physical danger, red tape, rules and regulations, training and drills, and role ambiguity and uncertainty as causes of stress for EMS providers. Psychosocial stressors like workplace conflict, relationships with family, lack of appreciation, and abusive staff and abusive patient may be faced by other occupations, but arguably, such stressors are more salient for emergency personnel. Personality stressors (Mitchell & Bray,

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1990) are often those that refer to the specific personality traits found to be strong among emergency providers. Mitchell and Bray (1990) suggested these personality traits or characteristics include the need to be in control, a desire to do a perfect job (bordering on obsession), high internal motivation, action orientation, and high need for stimulation, along with being easily bored, having a need for immediate gratification, engaging in risk taking, and having high levels of dedication and the strong need to be needed. These traits lead to extremely high levels of dedication to the job and coworkers. All these traits combined work to create the rescue personality (Mikolaj, 2005).[18] In fact, these traits often initially draw providers to the field. The very traits that draw them to the field and make them good at what they do also make them vulnerable to stress (Mikolaj, 2005).

Shelton and Kelly (1995) used *superman syndrome* to describe the perception that many EMS providers often hold about themselves, a perception that can lead to problems and stress. The first part of this myth involves immunity, the belief that they are immune from the negative aspects of the events, including the stress involved. The second part of the myth is the belief that they can do the impossible against all odds. This striving for perfection and infallibility can, by itself, lead to increased levels of stress when things do not go well (Mikolaj, 2005). In this denial of the potential effects of stress, EMS providers create greater levels of chronic stress for themselves, consuming resources in the denial process that could otherwise be more effectively used to deal with stress, in addition to setting themselves up for potentially more serious reactions in the future (Mikolaj, 2005). The *man* at the end of *superman* suggests that such behavior is more in line with masculine than feminine traditions. Little attention has been given to the possibility that female EMS providers may not suffer from superman syndrome, and even

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[18] Additional information on the personalities and traits of EMS providers can be found in Chapter 2 of this work.

if they are afflicted with superwoman syndrome, its manifestation may differ and have a differing relationship with occupational stress.

In theory, Superman's kryptonite for EMS providers is the critical incident for EMS, which has the potential to result in acute stress for both male and female EMS providers. A critical incident is any event that overwhelms the provider's general coping ability, generally considered an extraordinary event that causes an extraordinary reaction (Mitchell & Bray, 1990). Common critical incidents for EMS providers include the death or serious injury of a coworker in the line of duty, working on a close friend or relative, a major man-made or natural disaster, an event involving sick or mortally wounded children, the death of civilian at the hand of emergency personnel (e.g., a pedestrian hit by an ambulance; Mitchell & Bray, 1990, Shelton & Kelly, 1995. Research has indicated more than 85% of emergency personnel have experienced at least one critical incident in their careers (Mitchell & Bray, 1990). Although symptoms of an acute response to the incident may begin very shortly after the event, they usually resolve within a short time, in weeks (Mitchell & Bray, 1990). The potential pathways of response to a critical incident have been proposed by Mitchell and Bray (1990), which proposes that only 3-4% of all providers suffer long-term consequences of PTSD. If most providers fully recover from their exposure to critical incidents, then they cannot have caused the acute stress responses that are the main contributors to overall EMS stress, nor can they have been the sole contributor to the negative outcomes generally blamed on stress. It seems likely, based on this pathway hypothesized by Mitchell and Bray, that chronic stress plays a greater role in negative outcomes. As with many other discussions of stress in this population, this pathway does not address provider sex as part of the model. Whether stress is experienced the same by both men and

women or whether provider sex is simply not a factor is not clear. Other sources of EMS stress can include training, violence, advancement, work-family spillover, shiftwork,

Training. McEvoy (2004) argued that "competent responders are not born into the emergency service; they are developed there" (p. 97). How this competency develops and manifests may have an effect on stress and coping. On the basic level, conflict and stress may develop when individuals' skills and knowledge cannot meet the demands of a situation. As they advance, the challenges and sources of stress evolve. This evolution may be followed using the five-stage Dreyfus model of skills acquisition (McEvoy, 2004). The five stages of the Dreyfus model of skill acquisition are novice, advance beginner, competent responder, proficient responder, and expert. Using this model can help to explain the relationship between years on the job and stress, but the model cannot fully account for the why even the most experienced personnel can encounter situations where they are returned to the status of a novice like being assigned to a new area or working for a new employer. The novelty of the situation makes novices particularly prone to stress (McEvoy, 2004). Under stress, they may present with decreased reaction time, reduced attention span, decreased perception of environmental clues, and impaired short-term memory (McEvoy, 2005). Manifestation of these signs may be seen as poor performance by coworkers and supervisors.

Advanced beginners suffer from stress as the result of attempting to adjust to the reality of practice in which the rules are not black and white, and they begin to understand more senior coworkers' frustration with their approach but do not yet have the skills to improve what they are doing (McEvoy, 2004). For competent responders, the sources of stress often arises from the ability to see their own mistakes when they occur when they are not able to prevent the mistakes from occurring. At the same time, they understand the need for flexibility in treating patients,

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but they are unable to realize it. Proficient responders often find their intuition and reflexiveness a source of stress in that they can sense problems but may not be able articulate them and get others to follow their lead. They are also acutely aware of their own mistakes, and the consequences resulting increase stress. Mentoring and leadership can cause stress for those at the expert level. It is unclear at which stage stress is the greatest, nor is it clear whether the stages manifest similarly for male and female providers.

Violence. EMS is not typically a profession associated with violence. EMS providers are viewed as helpers. They may respond to the aftermath of a violent encounter and help the victims, but the risk of violence directed at EMS providers from patients, patient family members, and bystanders is a very real but often neglected risk and source of stress for these providers. EMS providers also face workplace violence from coworkers and those they affiliate with as part of their daily routine. It is unclear how many EMS providers are victims of violence and assaults annually because no official record is collected. Similar to police statistics that tend to include only explicitly physical acts and exclude chronic or low-level events (Santos et al., 2009), EMS reports of violence lack much of the violent and aggressive events these providers encounter on a daily basis because it is assumed most encounters involve only verbal violence (Brough, 2005a).

Workplace violence can be defined as any event or incident in which a person is "abused, threatened or assaulted in circumstances related to their work, involving an explicit or explicit challenge to their safety, well-being or health" (Wynne, Clarkin, Cox, & Griffiths, 1997). Violence can include both physical acts and behaviors that can be deemed aggressive (Santos, 2009). Workplace violence has been proposed to cause harm in terms of emotional impairment, suboptimal health, increased withdrawal behavior, and diminished job satisfaction (Santos,

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2009). Similar to police officers, EMS providers are at risk of three type of violence as described by Santos et al. (2009): violence directed at the provider, violence initiated by the provider, and violence witnessed by the provider but neither initiated by nor directed at the provider. The violent behavior itself and the intensity of the behavior exist along a continuum that spans violence originating in the public domain to violence originating in the workplace, and the behavior can range from overt physical violence to covert or passive aggression. Santos et al. (2009) found, among a sample of police officers, the sources of violence were significantly more likely to be from outside sources, that is, public initiated violence, but coworker-initiated or related violence appeared to have a greater effect. There is no literature that provides deep speculation as to the effect of the different types of violence faced by EMS providers. It is unclear whether both male and female EMS providers experiences violence at the same rates and whether the effects of the violence differ. While violence and its effects are important as it relates to interactions with the public and patents, it is perhaps more important to understand in the context of coworkers and the work environment for women working in a traditionally male occupation.

Conflict between work and home. Those EMS personnel, similar to firefighters and police officers, experience marital problems that exceed the national average are generally accepted (McEvoy, 2004). McEvoy (2004) suggested people who work in these occupations fail to realize that family members do not understand the true nature of their occupations. This lack of awareness and understanding can lead to communication issues that, in turn, may lead to increased conflict at home. McEvoy (2004) noted that "emergency responders believe their loved ones don't understand them and their emergency service work; loved ones believe that emergency responders don't understand their needs and interests" (p. 69). McEvoy (2004)

discussed five issues unique to emergency service providers that may lead to work-home spillover conflict: loyalty, schedule, risk of danger, stressors carried home from work, and public opinion.

Emergency workers must work 24 hours a day, 7 days a week, 365 days a year, including major holidays when families traditionally spend time together. These providers often have to work on days that mark family milestones, like birthdays and anniversaries. They often find themselves missing family functions that provide bonding time for families, and their absence at these events creates tension and stress. Additionally, while most individuals work 8-10 hours a day, first responders may work up to 24 hours at a time, being away from their families for extended periods. Time spent away from the family at work may leave the spouse or partner of a first responder feeling like the sole party in the relationship or like a single parent when children are involved. Even at home, such feelings of isolation may occur for all parties. Because first responders typically work non-traditional work hours and shifts, they may spend time at home that might otherwise be spent with family engaging in basic activities like sleeping.

In some places, first responders operate on an on-call status that further exacerbates these potential conflicts, especially when the family fails to understand why the first responder needs to "drop everything" to respond to a call. It is also important to remember that emergencies do not follow a set time frame. A single emergency can last 10 minutes or 10 hours. Unlike other occupations in which work can be left on the desk overnight to be completed in the morning while employees go home to have dinner with their families, emergencies need to be dealt with in the moment. This nature of emergencies often leaves first responders working overtime beyond their shifts. First responders often have a loyalty to the job and a desire to see an event to its completion that keeps them on scene. Although first responders may be expected home at

a certain time, it is not uncommon for them to arrive several hours late. In some instances, family members may feel other first responders and the job are being put before them because of this intense loyalty that develops (McEvoy, 2004). For female EMS providers, the work-home spillover effect could potentially be stronger than for male providers because of the second shift responsibilities.

First responders are also affected by the increased family stress arising from safety issues. The annual fatality rate for first responders is higher than the national average. While a first responder may accept that he or she may face danger, family members may have a difficult time accepting this fact. However, even the most routine call can turn deadly, and the first responder may not return to his or her family at the end of the day. While first responders are protected by special laws and statuses in many places, these statutes do not always include EMS providers. In fact, New York State did not close a loophole in the law the allowed most individuals who assaulted EMS providers to evade punishment until December 2015.

Finally, the high expectation and action orientation that make emergency first responders good at their jobs may be a source of conflict at home (McEvoy, 2004). Just as they have an attitude of there being no room for failure or mistakes at work, they may be unwilling to show tolerance for errors at home. When applied to families, those expectations can be stressful and destructive. As part of their jobs, EMS providers are trained to listen, but years of experience can cause them not only to listen but also to assess a situation quickly without listening to the whole story (McEvoy, 2004). They may also stop listening after the first few sentences, assuming they have deduced all that is needed to know how to remedy the situation. Such behavior, along with the tendency to collect visual and non-verbal cues, which they have acquired and perfected as part of their training, causes the first responders to present the

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appearance of being judgmental and not really listening to family members. Although all these skills are beneficial in the field, at home "often the real message comes after the emergency responder [has] stopped listening" (McEvoy, 2004, p. 73).

EMS Stress and the Literature

A limited number of studies have addressed stress in EMS personnel in any manner,[19] and most of what passes for literature on stress in EMS providers is based on assumptions and myths about behaviors of EMTs and paramedics (Sterud, Hem, Lau, & Ekeberg, 2011). Little is known about what actually constitutes a stressor for EMS providers and how and when stress presents and manifests. Most studies have been focused on European and Asian samples with few U.S. samples included in the research. No studies currently in publication seriously look at EMS personnel sex and the framework in which stress is understood.

Being an EMS provider is assumed to be a stressful occupation (Sterud et al., 2011). Several studies have found that EMS providers experience high stress levels (Cydulka et al., 1989; Hammer, Mathews, Lyons, & Johnson, 1986; Revicki & Gershon, 1997; Sterud et al., 2011), but they have not fully examined what is meant by this broad conclusion. Furthermore, others have questioned that assumption. Some have argued that an EMS provider's job in and of itself is no more stressful than many other occupations and that it is not the nature of the job that creates stress but the work environment, including organizational factors (Sterud et al., 2011) and the failure of organizations and management to address EMS providers stress (Young & Cooper, 1999). Sterud et al. (2011) sugrgested ambulance personnel may not be as severely affected by incidents that one might assume would be traumatic because the trauma aspect is an expected part of the job. Others have suggested EMS providers deal with stress better than people in other occupations (McEvoy, 2004). Iranmanesh et al. (2013) found that paramedic personnel had

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[19] Most EMS studies focus on non-American samples and often have small sample sizes.

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fewer PTSD symptoms than lower level hospital emergency personnel and suggested the higher

educational requirements of paramedics may serve as a protective factor. This suggestion is

based on the notion that, because they are constantly faced with stress as part of their everyday

work environment, they can deal with it. In effect, the argument is that exposure to stress limits

its effect (McEvoy, 2004). This assertion does not appear to be based on any empirical data.

McEvoy (2004) suggested the low appearance of stress in EMS providers may be more about

failure to recognize the signs and symptoms of stress in themselves then about its actual presence

and effects. In fact, McEvoy (2004) argued, for many EMS providers, the signs and symptoms

of a stress response may be viewed as weakness or inability to do the job. They may consider

themselves as not being fit for that sort of work and leave the profession rather than seek help.

While most police department recruits undergo some sort of psychological evaluation related to

fitness for duty, including their ability to withstand and deal with stress and their level of risk, it

is unclear to what extent potential EMS providers undergo similar screening.

Many of the studies of stress in EMS providers have been focused on critical incidents

and PTSD. Studies of PTSD in EMS providers have found mixed results, but most show high

levels of PTSD in EMS providers (Bennet et al., 2005; Blumenfield & Byrne, 1997; Grevin,

1996; Regehr, Goldberg, Glancy, & Knott, 2002). Vandarakis, Vandarakis, Katsardi, and

Koutsojannis (2008) found, in a sample of Greek ambulance personnel, PTSD symptomology

was high for EMS personnel, and the researchers concluded it was indicative of "an inability [of

ambulance personnel] to cope with post-traumatic stress caused by the daily work experiences"

(p. 334). In their conclusion, they allude to what is missing in stress studies focused on EMS

personnel: the daily work experiences. Daily work experiences are crucial in investigating what

accounts for the chronic stress that builds to the point of PTSD. Critical incidents are generally

considered to be among the more stressful events for EMS providers. Almost all EMS providers report having been exposed to at least one critical incident in their careers (Regehr et al., 2002), yet studies have indicated that most of what accounts for stress in EMS includes rank and job description and general population served (Cydulka et al., l989). Although some studies have linked critical incident exposure to increased risks and presentation of PTSD (Regehr et al., 2002), others have found the frequency of exposure to critical incidents has no effect of the development of PTSD and other associated psychological symptoms in EMS providers (Declercq, Meganck, Deheegher, & van Hoorder, 2011).

Studies of police officers have found that high stress levels are associated with negative outcomes, such as deviant behavior (Arter, 2008). High stress levels in EMS providers have been found to be associated with job dissatisfaction (Cydulka et al., 1997; Hammer et al., 1986); work turnover (Grevin, 1996); absenteeism (Grevin, 1996; organizational stress (Cydulka et al., 1997; Hammer et al., 1986); provider health (Cydulka et al., 1997; Sterud et al., 2011); work-related injuries; psychological distress, including depression (Revicki & Gershon, 1996; negative patient attitudes (Cydulka et al., 1997; Hammer et al., 1986); and overall reduced work performance, including patient care.

Although a few studies have been focused on EMS providers in general, even fewer have been focuses on sex differences in providers as it applies to stress, and the results of these analyses are conflicting (Santos, 2009). A study of female military personnel found that women commonly cited working in a male-dominated workforce as a major source of threat (Bray, Fairbank, & Marsden, 1999), highlighting the need to study sex differences in experiencing stress in male-dominated occupations. A study of EMS personnel in England found that men suffered from higher levels of PTSD than did women and organizational factors and stress were

the greatest contributors to stress (Bennet et al., 2005). Aasa et al. (2005) found male and female EMS providers reported stress-related health complaints at high rates, with women reporting these complaints more often. Brown and Fielding (1993) found that male police officers experienced higher levels of operational stress (stress related to events like arrests) than did female officers. Whether similar findings would be true for EMS providers is not clear. Studies of police officers have also shown that lack of acceptance of female police officers in the male-dominated workplace can lead to issues with information sharing, protection, backup, support, and mentoring from both senior police officers and supervisors (Morahs et al., 2006), issues that can only increase stress. Females in male-dominated workforces not only face such attitudes from coworkers but also from the public. For EMS providers, these attitudes can also come from patients.

Theoretical Conceptions of Burnout

An examination of occupation stress would be severely lacking if it failed to include the concept of burnout as part of the equation. Most models of stress and coping, like the transactional model, make no specific mention of burnout. Not including burnout in the model allows important aspects of the development of stress, particularly occupational stress, to go unaccounted for. Burnout is fundamentally linked to both occupational stress and coping (Leiter & Maslach, 2005).

No one enters his or her chosen profession burnt out. Burnout develops over time. It is not an acute reaction. Stress experiences slowly grind away at the person. The process has been compared to "the relentless pounding of the surf eroding the beach along the shoreline" (Stinchcomb, 2004, p. 262). When people reach the point where too much has been eroded, they lose their enthusiasm and have no energy left. While a feeling of being overwhelmed, stressed,

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or exhausted may be present on varying levels, the person experiencing these symptoms and those around him or her may not attribute them to burnout. Although burnout does not occur overnight, it is not an all-or-nothing concept; it can exist on a continuum (Potter, 2005). Burnout is caused by stress but can be mitigated by good coping.

The history of the concept of burnout. The concepts underlying burnout are very old, but use of the term *burnout* is relatively recent. It first appeared in common use in the 1970s with observations of everyday experiences of workers (Kristensen et al., 2005; Schaufeli, 1999). Part of the complexity of the concept of burnout is that it was not developed by academics and researchers but was a term borrowed from everyday language to define concepts, behavior, and reactions observed in certain populations and situations. The term *burnout* originated in British slang and meant to work too hard and die early (Schaufeli & Enzmann, 1998) and was widely used. The term's use in academic literature emerged as part of examining care-giving occupations. It was first used in academic publication by Freudenberger (1974) in his article *Staff Burnout*, in which he described what he was observed among interns working with drug addicts in a New York City clinic. Freudenberger borrowed the term *burnout* from the colloquial term used to describe the effects of chronic drug use. Freudenberger continued to examine the concept of burnout in terms of assessment, prevention, and treatment approaches.

In 1976, Maslach began to examine how those in the human services fields coped with emotional arousal associated with the job and also used the term *burnout* because she and her colleagues felt it was a colloquial term that would be easily understood by participants in their research. Maslach's work focused primarily on the theoretical aspects of burnout and their implications. Maslach and her colleagues found that many respondents reported feeling emotionally exhausted and drained of all feeling by work and beginning to feel negatively

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towards work, developing negative perceptions of patients. Interviewees reported they felt like they were encountering a professional crisis because of these feelings. Much of Maslach's early work involved case studies and interviews.

Freudenberger's work continued to focus on burnout as an individual stress response while Maslach's studies treated it as more of a transactional response to the workplace and surrounding environment. Both early approaches showed that caring for others as a profession was demanding, and emotional exhaustion was a not an uncommon response to this load. Depersonalization was also not uncommon, and as personal accomplishment declines, it is often accompanied by a distinct set of behaviors that can be observed even if not self-reported. Studies quickly validated the concept of burnout across the United States, Canada, Europe, and Israel, with only regional and cultural differences (Leiter & Maslach, 2005). Between 1974 and 1980, the number of publications focused on burnout rose from five to 200 (Schaufeli & Enzman, 1998). Since then, an average of 200-300 burnout-related articles have been published annually (Schaufeli & Enzmann, 1998), and the studies continue to proliferate with the addition of the concept of engagement as the antithesis of burnout (Leiter & Maslach, 2005).

The definition of *burnout*. Maslach and Jackson (1981) provided one of the earliest descriptions of burnout by describing it as a global feeling of emotional exhaustion that results in increasingly detached and cynical attitudes towards patients and a loss of confidence in one's ability to continue successfully in the current job, resulting in the development of negative self-evaluation, especially in terms of one's work. Later, Maslach and Jackson (1986) defined *burnout* as a "syndrome of emotional exhaustion, depersonalization and reduced accomplishment that can occur among individuals who do 'people work' of some kind" (cited in Shaufeli & Enzmann, 1998, p. 31). Later definitions were expanded to include non-service professionals.

The updated definition redefined *burnout* in more general terms as "a crisis in one's relationship with work" (Schaufeli & Enzmann, 1998, p. 32). Thus, burnout is as "a persistent, negative work-related state of mind in a 'normal' individual that is primarily characterized by exhaustion, which is accompanied by distress, a sense of reduced effectiveness, decreased motivation and the development of dysfunctional attitudes and behaviors at work" (Schaufeli, 1999, p. 18-19). Burnout has also been presented as "people giving too much for too long and receiving too little in return" (Schaufeli & Enzmann, 1998, p.1). Schaufeli and Enzmann (1998) added that burnout is really about a "long term imbalance between investment and outcome" (p. 1). Other definitions focus on the idea of exhaustion, describing burnout as a "state of physical, emotional and mental exhaustion caused by long term involvement in situations that are emotionally demanding" (Schaufeli & Enzmann, 1998).

Physical exhaustion involves chronic fatigue, low energy, and weakness. It also includes physical and psychosomatic complaints. Emotional exhaustion includes feelings of hopelessness, helplessness, and entrapment. *Mental exhaustion* refers to the negative attitude held toward self and work. Leiter and Maslach (2005) provided the current definition of *burnout* by describing it in more general terms as a loss of energy, loss of enthusiasm, and loss of confidence that affect all aspects of a person's life, including physical health, psychological health, relationships and personal interactions, and work performance.[20]

Components of Burnout

The three-component model of burnout indicates emotional exhaustion, depersonalization, and decreased professional accomplishment are the main components. In some models, the three components are called *exhaustion*, *cynicism*, and *job detachment* (Leiter

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[20] Most the definition involves description of signs and symptoms. None of the definitions mention stress or coping although the implied connection is there.

& Maslach, 2005; Maslach & Lieter, 1997; Maslach, 2003). The basic underlying assumption of the two sets of components is the same. The difference is grounded in the type of occupation being discussed. Those discussing general stress at work uses the second set of terms while those involving education and human services traditionally use the first set of terms.

Exhaustion is the individual stress aspect of burnout. It is usually the first sign to appear. Emotional exhaustion is the depletion of personal resources, with people no longer being able to give of themselves. It is defined as feeling overwhelmed physically and emotionally. The colloquial term *drained* is often attached to this phenomenon. When a worker experiences exhaustion, he or she feels drained of resources and cannot find or do not have an effective way to replenish. For some, exhaustion may mean waking up in the morning after what should have been a full night's sleep but still feeling as tired as before they went to bed. For others, it involves the inability to unwind at the end of the day. The major sources of exhaustion are work overload and interpersonal conflicts at work. Exhaustion can lead individuals to engage in behaviors that work to distance them from their jobs.

Cynicism and depersonalization are part of the same concept. *Cynicism* is defined as "negative, callous or excessively detached response to various aspects of the job" (Leiter & Maslach, 2005, p. 100). It involves taking an overall cold or distant attitude towards work. *Depersonalization* refers to the development of negative, callous, and cynical attitudes towards those they serve. Both usually develop as a result of emotional exhaustion. They are means by which individuals attempt to protect themselves from the exhaustion they have experienced or anticipate experiencing (Maslach & Lieter, 1997). Some level of detachment can be self-protective. Detached concern can actually act as a buffer while allowing for thoughtful action. The problem arises when detached concern develops into detachment. The problem with

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cynicism and depersonalization is that it actually involves the development of negative attitudes, which in turn result in a decline in job performance and quality.

Ineffectiveness or reduced personal accomplishment is the self-evaluation aspect of burnout. It is characterized by an increased sense of inadequacy, which results in loss of confidence in one's self and one's own abilities and eventually leads to others losing confidence in the individual. This situation can occur when employees feel a lack of productivity and achievement at work. These feelings can be exacerbated by lack of resources on the job, as well as a lack of social support (Maslach, 2003). At its worst, these feelings can cause workers to question their career choices and may prompt career change. These feeling may even cause the person to question the type of person he or she has become, creating an overall negative sense of self-regard (Leiter & Maslach, 2005).

Risk Factors for Burnout

Individual risk factors. Schaufeli and Enzmann (1998) noted that biological factors are generally co-factors in burnout, not causes. For the most part, general demographic variables have been shown to be somewhat inconsistent when applied to the risk of burnout. Age has shown some consistency, with younger workers experiencing higher levels of burnout than older workers (Leiter & Maslach, 2005). Burnout tends to appear in those over 30 years old but declines with age and work experience (Schaufeli & Enzmann, 1998). However, when considering age, one must also take into consideration that those who are older often have more work experience and may have learned to navigate through and around burnout. An element of survival bias is related to both age and years of experience. Generally speaking, those who burnout will do so early on, leaving behind those with lower levels of burnout. Schaufeli and Enzmann (1998) suggested age may be linked to other factors that cause burnout and may serve

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as a moderating variable. Single people also appear to be at a slightly higher risk of burnout (Schaufeli & Enzmann, 1998). Those with higher education, which in this study's sample would be paramedics, may have higher levels of burnout, but the evidence is conflicting (Schaufeli & Enzmann, 1998). Those with higher education levels may hold position with more responsibility, which can affect the risk of burnout.

Those who engage in more passive coping (Leiter & Maslach, 2005), defensive coping behaviors (Leiter & Maslach, 2005), and avoidant coping (Schaufeli & Enzmann, 1998) may be more likely to burnout than those who engage in more active coping (Leiter & Maslach, 2005). However, the indicators are complex. In addition, because coping is often situational, the link is unclear.

Concerning individual sex, it has been widely hypothesized that women should experience higher levels of burnout than men because they often have second-shift responsibilities. Further, a specific assumption is that women will be more cynical and suffer higher levels of exhaustion (Leiter & Maslach, 2005). The general literature provides little consistent support either way (Leiter & Maslach, 2005). The general theory and literature about the relationship between sex and burnout often fails to address specific occupational factors faced by women, including working in male-dominated professions, such as EMS, as well as such work environment issues as shift work, which could have a greater effect on women than on men.

Situational risk factors. Situational risk factors have been more widely researched than individual factors and seem to be more influential in burnout (Leiter & Maslach, 2005). These factors are not independent of each other; a problem in one area can create or be related to a problem in another area. In addition, the six areas of workload, control, rewards, community,

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fairness, and values can work in conjunction with individual factors, like sex, in the development of burnout, especially in traditionally male work environments.

Workload and control can be understood as part of the demand-control model of job stress (Jones & Bright, 2001). Workload contributes to burnout when workers feel they have been given too much to do with too little time to do it or too little resources to accomplish the task. A heavy workload is characterized by long hours and constant deadlines (King, 2005; Lieter & Maslach, 2005), along with too little time to complete the work assigned (Maslach & Lieter, 1997), which is common in EMS.[21] Second jobs and work dominating free time can also play a contributing role (Maslach, & Lieter, 1997). Excessive workload often manifests as exhaustion and cynicism (Maslach, 2003). Work overload is directly connected to exhaustion "although work may be wearing you out, you cannot stay away, because you have a sense of duty and obligation to co-workers" (Maslach & Lieter, 1997, p. 42), an attitude commonly found in EMS providers.

Control refers to lack of control that can result from rigid policies, micromanagement, and petty bureaucracy (Lieter & Maslach, 2005). Employees may feel that they are held responsible for outcomes that they really have little or no control over because of a chaotic or unpredictable work environment. Employees not only want to make choices but to have input into the larger processes at work. Often, such freedom is missing in EMS, where policy and protocol are set by those higher up who often have little understanding of the street realities of EMS. The resulting rules and policies do not allow employees to do their jobs in a way that makes sense, thus contributing to burnout (Maslach & Lieter, 1997). Stinchcomb (2004) noted the militaristic hierarchies of most police organizations contribute to burnout for this reason. The same probably applies to EMS.

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[21] Response times, patient contact times, and turnaround time as deadlines are constantly faced by EMS providers.

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Rewards, both internal and external, are related to the concept of positive reinforcement. When employee achievements are not recognized, both the employees and their work are devalued. Workers then come to find themselves work despite management rather than with management. For most helping professionals, positive feedback is not present, even in the most basic fashion because they do not often have the opportunity to see the positive outcomes of their work (Maslach, 2003). Instead, the result or outcome is only known when it is bad or something goes wrong. Maslach (2003) noted that "helpers are expected *always* to be warm, giving, patient and courteous, and *never* rude, abrupt, hostile or cold" (p. 33). Therefore, in the minds of many people, there is no need to provide feedback unless these individuals fail to live up to these standards. In a similar manner, EMS providers are often not acknowledged for their positive and lifesaving actions. Among first responders, one of the chief complaints is that no one ever says "thank you" (Maslach, 2003). Not only does no one thank the first responders, but clients or patients and their family members are verbally and physically abusive and behave in a manner that dehumanizes providers (Maslach, 2003). Providers are undoubtedly affected by these types of interactions, but they cannot respond or lash out at clients or patients, so negative feelings and emotions are bottled up, contributing to burnout.

The community component is largely focused on social support. As work becomes more stressful and less enjoyable, people spend less time with coworkers even as they spend the same amount of time at work. Fighting coworkers, patronizing bosses, resentful subordinates, and difficult clients all play contributing roles (Maslach & Lieter, 1997). Workers become physically isolated from each other because they are busy and communication breaks down, further increasing isolation, which in turn reduces the cohesiveness of the workforce (Lieter & Maslach, 2005). The loss of community undermines the workplace by increasing conflict while

further reducing teamwork, creating a cycle that is difficult to break and may progress to the point of creating an openly hostile workplace with openly adversarial behavior (Lieter & Maslach, 2005; Maslach & Lieter, 1997). Furthermore, bullying is allowed to flourish in work environments that lack community (King, 2005). Studies have shown that such behavior in the workplace can result in higher rates of burnout and have an overall negative effect on employee health (Hogh et al., 2005). The targets of bullying behavior often lack the support of others, including their coworkers and supervisors, and may experience other problems associated with poor and unsupportive environments. Community and social support are at the heart of the EMS profession. When this foundation is eroded by the organizational environment, the result is increased risk of burnout for individual providers. Similarly, for women entering the male-dominated occupation of EMS, issues of community and social support can be problematic.

Every employee wants to work in a fair workplace. When people are shown fairness, their self-worth is confirmed and reinforced. When fairness is lacking in the workplace, employee's lose trust in those in authority and the community itself. Unfairness can exist in terms of pay scale, rule application, and administrative issues, including overtime and work schedules. Unfairness can manifest in signs of disrespect, discrimination, or favoritism (Lieter & Maslach, 2005). Fairness, trust in authority, and community are crucial to the EMS ethos.

The final aspect, values, is really about values conflict. Often, workers find themselves facing a "significant disconnect in the extent to which [they] believe in the organization and the organization believes in [them]" (Lieter & Maslach, 2005, p. 18). These values are most visible in the choice made by an organization and its policies. When conflicting values emerge, a lack of community support limits individuals in seeking advice and resources. Such conflicts often serve to highlight unfair practices. It is not uncommon for organizations to say one thing and do

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another, resulting in insincerity in organizational values. Usually, the lower paid front-line personnel must deal with this insincerity on a regular basis while upper management rarely see the practical implications of the policies and implementations. Such a situation is not uncommon in EMS, whose organizations pledge to provide top quality care but where monetary and political concerns leave front-line providers with less than the ability to provide quality care.

The Theoretical Framework of Burnout

To help explain the concept of burnout, Potter (2005) compared burnout to a fever, pointing out that

> stress does not cause burnout any more than a fever can cause pneumonia. Fever is a symptom but not the cause. While getting rid of the fever will not stop the illness, an unchecked fever is serious and compounds the destructiveness of pneumonia. So the fever must be treated. (p. 73)

Just as eliminating a fever will not stop pneumonia, eliminating stress alone will not stop burnout because there are other factors involved. However, as controlling a fever helps to treat pneumonia, controlling stress helps to alleviate burnout.

Underlying all the varying definitions of *burnout* is the concept of a process. All the processes begin with the assumption of a disconnect between expectation and reality. Several possible explanations for this process exist. Chreniss (1996 cited in Schaufeli and Enzmann, 1998) described a three-stage process in which the first stage is focused on the imbalance between resources and demands. The second stage involves short-term emotional tension, fatigue, and exhaustion. The third stage involves changes in behavior and attitude. These changes in social service professionals often involve treating patients or clients in a detached fashion and expressing cynicism. Other models present burnout as increasing disillusionment

and "progressive loss of idealism, energy and purpose" (Schaufeli & Enzmann, 1998 p. 34). It is marked by a loss of idealism and extreme fatigue. Burnout can also be viewed as a form of psychological erosion that "starts without warning and evolves almost unrecognized up to a particular point. Suddenly and unexpectedly one feels total exhaustion" (Schaufeli & Enzmann, 1998, p.42). Maslach and Lieter (1997) suggested burnout "represents an erosion in values, dignity, spirit and will-an erosion of the human soul . . . a malady that spread gradually and continually over time putting people into a downward spiral from which it is hard to recover" (p. 17). Whatever the process, knowing how an individual copes is crucial to understanding how he or she develops burnout, so burnout cannot be examined without also considering coping (Schaufeli & Enzmann, 1998).

Four general theoretical approaches can be used to understand burnout: individual, interpersonal, organizational, and societal (Schaufeli & Enzmann, 1998). Nineteen sub-approaches to burnout have been identified as fitting under these four general approaches (Schaufeli & Enzmann, 1998). The biggest issue with these 19 sub-approaches is that they are not necessarily mutually exclusive, nor are they individually inclusive of all aspects related to burnout.

Individual approaches. The individual approach encompasses eight different approaches, most of which have not been empirically tested. The first approach views burnout as the failure to retain one's idealized self-image. Freudenberger considered this to be "the disease of over commitment" or "the super achiever sickness" (1974 Schaufeli & Enzmann, 1998, p. 18). Most people view themselves as infallible with some superhuman components. They lose touch with who they really are. They continue to try with all their might to live up to their idealized self, fail, and in trying to correct this failure, often use the wrong strategies, only

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draining more of their resources and energy. Under this model, burnout sets in because of a failure to achieve expected rewards rather than a lack of confidence to achieve goals. The second individual approach views burnout as progressive disillusionment.

The most well-known example of this approach is the four-stage model advocated by Edelwich and Brodsky (1980, as cited in Schaufeli & Enzmann, 1998). Under this model, the individual begins with idealistic expectations of the workplace, but the everyday reality frustrates him or her, with the frustration growing gradually through four stages. Enthusiasm is the initial response, during which the individual is full of energy and works hard. The job holds a great deal of promise. This stage is followed by the stagnation stage, during which expectations are reduced. Money and working hours become the most important issues, replacing general over-identification and commitment to the workplace. With increased powerlessness, frustration increases, leading to the third phase. Office politics, low pay, and lack of institutional support affect the individual cognitively, emotionally, and physically. Apathy is the final stage, during which the person withdraws from the workplace cognitively and physically (with absenteeism)) (Schaufeli & Enzmann, 1998.

The third individual approach views burnout as a pattern of wrong expectations. This is a cognitive-behavioral approach, grounded in learning theory, in which burnout develops as a result of a pattern of wrong expectations that do not correspond with the actual situation (Schaufeli & Enzmann, 1998). These wrong patterns can trigger learned helplessness and affect a person's sense of accomplishment, resulting in burnout.

The fifth individual model defines burnout as a pattern of disturbed actions. Action theory is the framework of a disturbed action pattern. Schaufeli and Enzmann (1998) described an "undisturbed action episode [as] a cyclical process that starts when an individual's latent

motives are activated" (p. 104). If all works out well with this activation, positive emotions are associated with the action, as well as satisfaction and pride, and the action is likely to be repeated in the future. However, often, the action does not have the desired effect. Obstacles may block the attainment of certain goals (motive thwarting), or a goal can only be achieve with effort that is much higher than was originally anticipated (goal impediment). In some cases, the reward is insufficient. The goal may be achieved, but the reward fails to meet the original expectation. Finally, there can be unexpected negative side effects that offset any potential rewards. A single failure will cause first-order stress. When this first-order stress is not alleviated and attempts to fix the situation continue to fail to remedy the problem, one's autonomy is threatened, and second-order stress develops. If one can successfully deal with second-order stress, he or she will experience personal growth, but if not, he or she will experience burnout. Under this model, feedback and indicators of success are needed to gauge where the person is in reaching the goal. For many social service occupations, such feedback does not occur.

Burnout can also be viewed as the loss of resources. This view is based on the general theory of conservation of resources (COR; Schaufeli & Enzmann, 1998). The assumption of COR is that people are motivated to obtain, keep, and protect what they value. The things that people value are called *resources*. Resources include objects like a home, conditions like job stability or social support, and personal characteristics like self-esteem. When these resources are threatened, psychological stress emerges (Schaufeli & Enzmann, 1998). Psychological stress also emerges when resources are lost or the gain is not equal to the investment. When job insecurity occurs or when a person experiences unemployment or fails to get a promotion despite hard work, he or she will experience psychological stress. If a person successfully copes with this stress, then the feedback loop is closed, new resources are gained, and old resources are

protected. However, failure to deal appropriately with the stress or prolonged exposure to it can result in burnout. Under this model, "burnout occurs when the net loss of valuable personal resources is perceived that cannot be replenished" (Schaufeli & Enzmann, 1998, p. 107).

Some have argued that burnout is, in fact, a narcissistic personality disorder (Schaufeli & Enzmann, 1998). Those who view burnout as a personality disorder have asserted that most people do not work beyond what is reasonable and common sense. Most people understand and realize when work threatens their overall well-being. Those who experience burnout keep going, often in spite of obvious signs they are putting their health at risk. Some have argued they keep going because of illusions of grandiosity, the belief they can accomplish more than they can. They are not grounded in realistic expectations (Schaufeli & Enzmann, 1998).

A psychodynamic theory associated with burnout involves the imbalance between conscious and unconscious functions (Schaufeli & Enzmann, 1998). Psychodynamic theory indicates there are two types of people: those who are feeling types and those who are thinking types. Both types of personalities are present in every person, although one tends to dominate the other. Feeling types are those who are "tender minded" and are concerned with people and have an awareness of others (Schaufeli & Enzmann, 1998). Thinking people are those who work hard and are achievement oriented. Thinkers tend to neglect others while focusing on themselves (Schaufeli & Enzmann, 1998). Because people tend not to selects jobs that conflict with their dominant personality type, it seems likely that doing so will affect burnout in terms of who experiences it and when. Individuals who are experiencing burnout may experience a process of reversal or energy depletion (Schaufeli & Enzmann, 1998). This reversal involves a decrease in the characteristics that would be normally associated with a particular type. For feeling types, burnout is associated with decreased caring while thinking types will experience

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decreased ambition and motivation. It has also been argued, when "the psyche is deprived of energy, . . . the predominant conscious function drops into the unconscious and the opposite repressed functions emerge in a disruptive, negative way" (Schaufeli & Enzmann, 1998, p. 110). This imbalance fuels burnout.

In the framework of existential psychology, burnout has been viewed as a failed quest for existential meaning (Schaufeli & Enzmann, 1998). Individuals have a basic need for meaning and significance in their lives. The underlying assumption of this approach is that only highly motivated individuals will burn out because "to burnout, one has to first be on fire" (Schaufeli & Enzmann, 1998, p. 111). This burnout occurs because of a gradual process in which experiences do not meet expectations. This failure results in frustration, which undermines the search for meaning and significance.

Interpersonal approaches. Schaufeli and Enzmann (1998) identified five interpersonal approaches. The first approach views burnout as a lack of social competence and failure of effective interpersonal relationships. This approach focuses on how one feels about his or her ability to interact with others and the environment. The desire to help and interact is not enough to be able to do so effectively. When individuals feel they have lost the ability to interact effectively, burnout may result. Work self-efficacy has been found to be inversely related to burnout (Schaufeli & Enzmann, 1998). Work efficacy can be impeded by a number of components, including heavy caseload, lack of feedback, and excessive paperwork.

The second interpersonal approach views burnout as a form of emotional overload. The root cause of burnout under this model is the interpersonal demands that result from engaging in a helping relationship that, by its very nature, is emotionally charged and can be draining. To deal with interpersonal demands, an individual will adopt detachment techniques and develop an

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attitude of detached concern. Detachment techniques are used to reduce interpersonal stress. This detachment can lead those involved in social services to cross the line between professional objectivity and unprofessional and dysfunctional attachment (Schaufeli & Enzmann, 1998). Providers may find themselves using more professional jargon, derogatory labels, intellectualization, sick humor, physical withdrawal, and psychological withdrawal. These techniques have been called "dehumanization in self-defense" (Schaufeli & Enzmann, 1998, p. 117). Individuals may also have a tendency to blame others or themselves rather than attributing the problems to the work environment. This self-blame usually results from a lack of positive feedback. In many instances, people, especially those who work with the helping professions, receive feedback only when something has gone wrong. This persistent negative feedback leads the professional to adapt depersonalization as a coping mechanism to maintain his or her own psychological well-being, furthering the cycle. Overall, under this model, burnout is the result of the exhausting demand of dealing with those who need service, resulting in emotional exhaustion. Following emotional exhaustion, depersonalization will develop and, because of maladaptive or dysfunctional coping, it will continue to build with time and as contacts with recipients increase, creating a negative feedback loop.

The next interpersonal approach views burnout as a lack of reciprocity (Schaufeli & Enzmann, 1998). According to this approach, burnout develops principally in the interpersonal and social setting of the workplace, and to fully understand burnout, one needs to focus on how individuals perceive, interpret, and construct their behaviors and the behaviors of others at work. While helping professionals often acknowledge that they will not receive high accolades, they do expect some reward for their effort. This expectation is often not fulfilled. Sometimes this lack of fulfillment is intentional; at other times, it is simply taking one for granted. Helping

professionals see themselves as giving but never receiving anything in return. People generally feel that they should get back what they put in. Lack of reciprocity leaves the professional emotionally drained and will eventually lead to exhaustion and burnout. Reward does not need to come from the client or patient. In some instances, even if that person fails to provide the reward, an overall positive work environment compensates, but when a poor work environment exists—as for those with poor pay, lack of role clarity, lack of social support, and lack of control—the imbalance can be exacerbated. This lack of reciprocity leads to negative emotions, but it also demand that reciprocity be reestablished. Equilibrium must be established. Initially, professionals will increase their efforts, but when they are not rewarded, the imbalance increases. In the absence of such workers receiving some reward from the work environment, they will balance and re-establish reciprocity by giving less at work. The decreased investment in the relationship only serves to further the cycle of exhaustion and eventual burnout.

The third interpersonal approach views burnout as an emotional contagion. Research seems to indicate the idea of burnout being contagious (Schaufeli & Enzmann, 1998). Some researchers have suggested that some people at work may act as models upon which others can base their behavior. Those under stress may perceive burnout symptoms in their colleagues and take on those symptoms and may also be a conscious cognitive effort called *tuning in* (Schaufeli & Enzmann, 1998). Helping professionals are trained to be empathic, so they may use these skills when relating to their coworkers. Some studies have also indicated that burnout is not only contagious among coworkers but also among family members (Schaufeli & Enzmann, 1998).

The final interpersonal model views burnout as an emotional labor (Schaufeli & Enzmann, 1998). Schaufeli and Enzmann (1998) defined *emotional labor* as "the act of displaying the appropriate emotions or more precisely as the effort, planning and control needed

to express organizational desired emotion during interpersonal transactions" (p. 124). Hochschild (1983, as cited in Schaufeli & Enzmann, 1998) identified two types of emotional labor, surface acting and deep acting, which both can have negative consequences. Surface acting involves displaying through verbal and non-verbal cues emotions that are not actually felt or experienced. Deep acting is actually feeling the emotions that one wishes to show. Surface acting creates emotional dissonance, which depletes the individual's emotional resources and promotes cynicism, withdrawal, and detachment. Deep acting can harm an individual by allowing one to become detached from the authentic self. While emotional labor in and of itself is not always harmful, the frequency of the behavior and overall work environment play an important role.

Organizational approaches. The previous approaches place the burden of burnout on the individual. It becomes the responsibility of each person to seek treatment or training to ensure he or she can deal with stress and burnout. Schaufeli and Enzmann (1998) provided three organizational approaches to burnout. These approaches focus on the effect of burnout on the organization and the individual, as well as the role the organization plays in the development of burnout in individuals, rather than placing the burden on the persons themselves.

For many, the nature of the workplace is the problem, not the nature of the work itself (Stinchcomb, 2004). This model builds on the idea that, ultimately, the organizational context in which a person works may be more significant in understanding stress than the occupation itself. The first organizational approach views burnout as "reality shock," in that the individuals have failed to find what they originally were looking for when they entered the profession. In many cases, the ideals and expectations that a person enters the profession with clash with the organizational realities. Often, when people are novices, they are faced with several potential

sources of stress, including doubts about competence, lack of collegiality, bureaucracy, and lack of stimulation or fulfillment. Specifically, those who work in the helping professions can be faced with stress that might lead to burnout from poor orientation that does not focus on a novice's needs, a high work load, a routine that may become boring and disheartening, a narrow scope of client contact, lack of autonomy, poor leadership and supervision, social isolation from colleagues who are not physically or psychologically available, and incongruent institutional goals in which the institution's goal may not coincide with the individual's personal values.

Cherniss (1980, as cited in Schaufeli & Enzmann, 1998) delineated four career orientations: social activist, artisan, careerist, and self-investor. The social activist wants to do more than just help the client while the artisan is intrinsically motivated and views professional growth as the most important thing. The careerist seeks conventionality associated with prestige, respectability, and financial security. The self-investor is more invested in his or her personal life than his or her career; self-investors work to live, not live to work. The social activist and artisan are at greater risk of reality shock and burnout than those with other career orientations. Cherniss (1980, as cited in Schaufeli & Enzmann, 1998) also identified six attitude changes associated with burnout: reduction in aspirations, depletion of energy, increased indifference, emotional detachment, alienation from work, and increased self-interest. Studies have also indicated the survival of workers who show signs of burnout earlier in their careers depends on the development of a more favorable work environment, growth of professional self-efficacy, development of special interests at the job, and vocational maturity that comes with time on the job (Schaufeli & Enzmann, 1998).

The second organizational approach views burnout as a virulent process with eight phases. It not only negatively affects or infects the individual but the entire organization.

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Burnout is triggered by job stress. The job stress is turned into physical symptoms, decreased performance, and reduced productivity. The eight phases are not related to the progression of burnout but are more classifications of how virulent a specific individual's symptoms are. Under this classification, those experiencing the most virulent burnout need not have experienced less virulent symptoms. This model is often associated with the Maslach Burnout Inventory, with higher scores being related to more virulent burnout (Maslach, 1986).

The third organizational model views burnout as a mismatch between person and job. This model is posited by Maslach and Lieter (1997) and appears to be among the most popular in the literature and research because it removes the individual aspect and makes burnout an organizational issue instead of a personal one. The approach is similar to the PE fit model and control-demand model discussed previously. The job-person fit model proposed by Maslach and Leiter (1997) has an emphasis on match or mismatch of person and job environment in terms of workload, control, reward, community, fairness, and values. In addition, there is increased emphasis on examination of job engagement, with burnout being reexamined as an erosion of engagement (Maslach, Schaufeli, & Leiter, 2001). Among the general public, burnout is considered a problem with the individual, but among researchers and psychologists, it is viewed as rooted in the social and organizational settings of the workplace and work environment (Maslach, 2003). Burnout is not about the individual and their stress but the "individual's relational transactions in the workplace" (Leiter & Maslach, 2005, p. 101).

Traditionally, occupational stress has focused on the industrial or organizational components of the phenomenon while burnout developed within the framework of lack of information in the social service area. The delineation between occupational stress and burnout that once existed has since blurred (Schaufeli & Enzmann, 1998). Burnout differs from general

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work stress in that it involves a relatively long time of experiencing symptoms and the effect on motivation (Schaufeli & Enzmann, 1998). Burnout also includes social and attitudinal components often absent in general stress. Thus, burnout is now considered a special kind of occupational stress that focuses on interpersonal stress at work (Schaufeli & Enzmann, 1998).

Societal approach. The societal approach goes beyond one's subjective professional experience and organization environments. Instead, it focuses on burnout as part of a broader sociological social concern (Schaufeli & Enzmann, 1998). The sociological approach removes much of the subjective nature of burnout, pointing to social and cultural factors that influence it (Schaufeli & Enzmann, 1998). Three sociological approaches dominate the stress approach. The first approach addresses burnout as alienation. Advocates of this approach cite Karl Marx and his description of the objectification of the means of production, which in the case of human service professionals, is objectification between people, fostering depersonalization. Under this objectification, work loses personal meaning because it becomes a commodity. Work as a commodity fosters fragmentation of the workplace, competition among colleagues, and loss of autonomy, all of which can foster burnout.

The second approach views burnout as a discrepancy between surface (manifest) and latent functions of organizations.[22] This model views employees as active agents who help to create their own social reality, not as passive agents who are shaped by their work environment exclusively. However, society imposes structural contradictions on human service organizations, and these may contribute to burnout. For example, a psychiatric nurse may be charged with both controlling patients and providing therapeutic treatment (Schaufeli & Enzmann, 1998). The manifest function of school is to educate children while the latent function is to socialize children

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[22] Manifest function of school is to educate kids while the latent function is to socialize children for later life and prepare them to take their place appropriately in older work environments.

to function in the worker society. When the latent and manifest functions come into conflict, burnout can develop (Schaufeli & Enzmann).

The final societal model views burnout as a cultural product or a societal construct. Institutional systems influence and reinforce burnout. Depending on which model prevails, *burnout* will be defined differently. At its inception, burnout was viewed largely in the context of the medical model. Under this model burnout was a pathological condition that needed to be controlled like any other disease. As the psychosocial model began to dominate, burnout was viewed as a social phenomenon and a normal part of work. Under this model, burnout is not the failure of the individual as it was under the medical model but is an unavoidable normal part of the job experience.

The theoretical framework of burnout tends to work better in those occupations that provide aide or service to those in need, where the central component of the job is the relationship between provider and client. Most studies on burnout still focus on the health-care, education, and human-services sectors (Leiter & Maslach, 2005), making EMS a perfect population in which to study burnout.

Burnout in EMS. Shelton and Kelly (1995) suggested that burnout as it is related to EMS providers occurs in a four-stage process. The honeymoon phase is the first stage. In this stage, responders are enthusiastic about their jobs to the point that they might overdo it,[23] setting the framework for the next stage, the disillusionment stage. During the disillusionment stage, the excitationthe responders once had about the job begins to work against them. Providers at this stage will realize that not everyone is always working with them and patients and bystanders do not often show their gratitude for being helped. While providers at this stage are still actively

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[23] Sometime these individuals are referred to as 'buffs'. The people not only respond to calls they are directly assigned to but also to those they are not assigned to if they sound 'good' or 'interesting'. These individuals may even listen to police and fire radio dispatch to be able to get to serious job before they are dispatched by EMS.

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engaged in their work, they begin to pull back. They might appear to be more callous, less caring, and far less eager to put themselves out there. The brownout stage, the third stage, is marked by the "who cares?" attitude. Providers begin to actively care less about the job and complain more outwardly and vocally. The fourth and final stage is total burnout, in which every aspect of the job requires a great deal of effort but providers put forth only the minimum of effort to function. This untested model indicated, from the first day, all EMS providers are on a path toward burnout as part of the occupational choice they made. This model is not sex specific and does not appear to include sex considerations as part of the process. Although whether this model holds true is unclear, it seems to mesh well with the widely accepted Maslach model of burnout and it highlights the need to study not only stress but also burnout in EMS providers.

Common signs of burnout in EMS providers include sleep disturbances, withdrawal, fatigue, apathy, physical symptoms, and general changes in mood and behavior (Shelton & Kelly, 1995), symptoms common in other populations as well. The prevalence of burnout in EMS is unclear, with only limited data available on burnout. It is also unclear whether men and women in EMS experience burnout differently and to different degrees. Because interaction with the work environment is a crucial component in burnout, the male-dominated nature of EMS may increase female providers' risk of burnout. Thus, following the literature, women may be more likely than men to suffer from burnout, particularly emotional exhaustion, because of different manifestations of stress and different coping behaviors; however, the general research data do not fully support this assumption (Purvanova & Muros, 2010).

Burnout Literature

Many studies have addressed burnout. Although the exact prevalence of burnout is not known, over 75% of U.S. workers self-report that they experience some level of stress at work

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(Schaufeli & Enzmann, 1998). Burnout is now considered one of the biggest occupational hazards of the 21st century (Lieter & Maslach, 2005). It represents a cost to employers, employees, and the overall organization in terms of monetary value, personal life, work performance, physical health, and psychological health. Burnout has been estimated to cost employers $300 billion annually in the United States because of sick time, lost productivity, medical expenses, disability, and job turnover (Cooper, 1998; Lieter & Maslach, 2005; Schaufeli & Enzmann, 1998). Of the estimated 550 million work days lost annually, an estimated 54 percent are lost because of stress-related issues (Schaufeli & Enzmann, 1998). In most states, the fastest growing category of disability claims are related to symptoms of burnout (Lieter & Maslach, 2005), and on average, stress-related claims cost twice as much as other claims (Schaufeli & Enzmann, 1998). Although burnout may be a work-related phenomenon, it permeates every aspect of a person's life (Maslach & Lieter, 1998).

Most studies on burnout conducted on the first responder population have been focused heavily on police officers. Early studies of police officers found that officers who experienced high levels of burnout tended to come home angry, exhausted, and tense (Jackson & Maslach, 1982, as cited in Greenhause & Parasurman, 1986). These same officers often became uninvolved with their families. Perhaps just as important as the effect of burnout on the individual providers is the effect it has on the communities they serve. Studies of police officers have found that those who experience burnout use more violence against civilians (Kop, Euwema, & Schaufeli, 1999).

Little of the academic literature has been focused on the prevalence of burnout in EMS providers. A study of volunteer EMTs in New York State indicated an "alarming percentage of participants scored high on emotions exhaustion (92%) and depersonalization (79%)" (Essex &

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Scott, 2007, p. 69). The same study also indicated, despite the highly reported levels of negative aspects of burnout, 75% of participants reported high levels of personal accomplishment. For EMS providers, the same negative consequences have been documented in the occupation literature, including job turnover. In a comparison of Norwegian EMS providers and police officers (Sterud, Hem, Ekeberg, & Lau, 2007), ambulance personnel were found to have lower levels of exhaustion and depersonalization, suggesting lower burnout out, but they also had lower levels of personal accomplishment. The same study indicated women in both occupations had significantly lower levels of emotional exhaustion and depersonalization than their male counterparts had.

Most studies have indicated difference between men and women with respect to burnout, including those studies that were focused on emergency room physicians (Goh, Cameron, & Mark, 1999). Most of these studies indicated the male participants showed higher levels of burnout than their female counterparts (Goh et al., 1999), with females showing lower levels of emotional exhaustion and depersonalization on the MBI (Goh et al., 1999).

Theoretical Conceptions of Coping

The concepts of stress and coping are intrinsically linked in that one cannot exist without the other and both serve to allow people to navigate and achieve in the world, as shown in the transaction model of stress (Folkman & Lazarus, 1975). Although the concept of coping is well understood in the abstract, with a good deal of lay writing about how to cope effectively, from an academic point of view, "there is little coherence in theory, research and understanding" (Lazarus & Folkman, 1984, p. 117). There is also controversy concerning what is healthy as opposed to unhealthy coping and what actually constitutes effective coping (Mikolaj, 2005).

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Development of Coping Theory

Most of the theoretical models of coping are rooted in either the animal experimentation model or the psychoanalytic school of psychology (Lazarus & Folkman, 1984). The animal model views coping in the context of adverse environmental conditions while the psychoanalytic model views coping as thoughts and behaviors to solve problems. The psychoanalytic theories also tend to focus on hierarchies of coping behavior based on the levels of internal disorganization or conflict. This approach has served as the foundation for most coping measures based on personality types (Lazarus & Folkman, 1984). The assumptions of these measures is, once a coping personality or style has been established, it will remain relatively stable over time, thus conceptualizing coping as one-dimensional. While not completely discarding these models, Lazarus and Folkman (1984) noted they were not adequate. They proposes coping is not a single stable behavior but instead a process that is constantly changing to meet the need of the person and situation.

Definition of Coping

Numerous definitions of *coping* exist. For most people, coping simply refers to the "efforts used to reduce or manage demands created by" stress (Mikolaj, 2005). For the purpose of this paper, the definitions of coping are based on the extensive work of Lazarus and Folkman (1984). *Coping* is defined as a "constantly changing cognitive and behavioral efforts to manage specific external and/or internal demands that are appraised as taxing or exceeding the resources of the person" (Lazarus & Folkman, 1984, p. 141). It involves both behavioral and cognitive efforts (Prati, Pietrantoni, & Cicognani, 2011). The definition is focused on the idea that coping is a process rather than a stable trait, that it involves effort and is not simply an automated adoptive response. It removes the results of the coping (good and bad) from the equation,

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focusing on managing not mastery of the response. This definition allows the focus of coping to being on what the person actually does, with the coping directed in a specific context, changing and developing as part of the process (Lazarus & Folkman, 1984). The process is one of appraisal and reappraisal as it progresses[24] which can be based on turning the process inward or focusing on the environment.

Theoretical Model of Coping

The coping aspect of the transactional model of stress serves as the basis for this present research. The coping component of the model acknowledges the influence on person and event of the method and effectiveness of coping responses. It acknowledges people have multiple coping responses from which they can draw. Coping not only varies by person, but by situation. Coping methods that might work for one person may not work for another, and coping methods that might have worked for a person in the past may not be effective for the same person in the present or future. Individuals use a variety of coping behaviors and strategies, depending on the type of stress and overall situation. A beneficial coping strategy in one situation may fail in another situation but prove to be harmful, necessitating diversity in coping. Not only is the situation key in the selection of the most appropriate coping mechanism, but it is also based on an individual's perception of the situation and overall perspective and judgment (Monet & Lazarus, 1991). A situation or event that is stressful to one person may provoke little or no stress in another. In addition, general perceptions of events as stressful as well as individuals' evaluations and appraisals of the levels of stress will affect coping styles. The key to the process is appraisal (Monet & Lazarus, 1991).

Cognitive appraisal theory (Schachter, 1964) is a theory of emotion that argues an individual's judgment and evaluation of a situation or event both determines and contributes to

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[24] With each attempt to cope, the relationship is affected, necessitating continuous reappraisal.

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that individual's emotional and cognitive response. Appraisal involves a threat and an assessment. A threat must be present and examined so that the person can determine it to be a threat and examine the resources available to the person and the effectiveness of those resources in neutralizing the threat. Primary and secondary appraisals represent two stages of the process, which often occur simultaneously and mirror each other. Primary appraisal focuses on the meaning of the event or situation, including the stake the person has in the event, and focuses on the classification of the event as a threat (something that will cause future harm), a challenge, benefit (something that could lead to a positive outcome), or harm-loss (the damage already having been done; Lazarus & Folkman, 1984). Secondary appraisal often includes aspects of coping options and responses, including a person evaluating his or her ability to influence or control the situation (Lefcourt, 2001). Based on these ideas, coping has been conceived as the conscious use of cognitive and behavioral strategies for reducing perceived stress (Anderson, Litzenberger, & Plecas, 2002).

Monet and Lazaurs (1991) originally conceptualized coping as either being problem focused or emotions focused. Problem-focused coping generally is used "to improve the troubled person-environment relationship by changing things" while emotion-focused coping deals with "thoughts and actions whose goals is to relieve the emotional impact of stress" (Monat & Lazarus, 1991, p. 6). Traditionally, problem-focused coping is considered to be good and positive coping while emotion-focused coping is considered to be maladaptive or dysfunctional coping in that emotion-focused coping does not attempt to deal with the underlying issue but tends to focus on actions and behaviors that allow an individual to avoid thinking about the issue, denying that anything is wrong and distancing himself or herself from the problem at hand (Monet & Lazarus, 1991). Emotion-focused coping allows an individual to deflect attention

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from the stress-causing item rather than attempt to deal with it. As the theoretical framework evolved, it became clear that dichotomy was not entirely accurate, in particular, in terms of behaviors considered adaptive and maladaptive.

Monat and Lazarus (1991) noted that even defense mechanisms like denial, a form of emotion-focused coping, can be a positive element in the overall coping process. Sometimes individuals face circumstances that have the potential to overwhelm their resources. Additionally, sometimes people are faced with situations in which attempts to use problem-focused coping would only increase stress levels and have negative effects. Being able to disengage from the stressor through emotional-coping techniques may allow an individual to gain the time and perspective necessary either to use problem-solving coping effectively or to move on from the things they cannot change. Emotion-focused coping might be best used in the short term to help maintain an overall sense of well-being and hope (Monet & Lazarus, 1991). When allowed to continue for long periods, unchecked emotion-focused coping can be maladaptive. Overall, "there is a growing conviction that all coping processes, including those traditionally considered undesirable have both positive and negative consequences for individuals" (Monat & Lazarus, 1991, p. 9). Thus, coping has increasingly been understood as a flexible range of cognitive and behavior actions used to meet needs, rather than a fixed concept.

Sex and Coping

As with many other related concepts, it has been assumed that men and women cope differently (Matheny, Ashby, & Cupp, 2005). In general, men have a tendency to internalize their stress experiences while women actively seek social support (Nelson & Burke, 2002). Researchers have found men tend toward problems-focused strategies while women tend toward emotion-focused strategies (Matheny et al., 2005). The tendency of women to seek social

support appears to be consistent across different type of stress and situations (Matheny et al., 2005). Not only do women actively seek social support, they often serve as the source of social support for others, especially husbands. In addition, women have a tendency to use social support more often and more effectively than men do. Some researchers have suggested this reliance on social support may be biologically rooted, in keeping with the tend-and-befriend approach as opposed to the male flight-or-fight response, which evidence suggests is hormonal (Matheny et al., 2005). Culturally and socially, women have generally been cast in the role of caregiver. In some respects, this socialization may force women to place the needs of others before their own when it comes to both stress and coping while allowing them to show "weakness" more readily than their male counterparts can (Matheny et al., 2005). In addition, women tend to use emotional and avoidant coping styles more than men do and are less likely to use rational and detached coping, perhaps because of tendencies to be more emotionally open and to engage their feelings. These sex-based differences might be observed in EMS providers, but whether female providers will adapt their coping strategies based on influence from their male-dominated work environment or whether they will continue traditional female coping strategies is unclear.

EMS Provider Coping

Coping for EMS providers can include a variety of techniques. Peer support is often among the primary means by which EMS providers are thought to seek support (Shelton & Kelly, 1995). When done in the correct manner, peer support can allow the individual to discuss freely and to process stress-causing events. Peer support for EMS providers can also have a negative effect on coping if the support provided comes in an authoritarian manner ("pull yourself together"), if blame is involved, and if it becomes dismissive (Shelton & Kelly, 1995).

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The key to effective peer support is active listening about the event, restraining from making judgments, encouraging communication, and validating emotions (Shelton & Kelly, 1995).

Coping strategies vary by individual. Not all coping strategies work for all people, and individuals often use multiple coping strategies, depending on the situation encountered. Because people's personalities and experiences influence their choices of professions, differences in coping styles may differ by occupation. Numerous researchers have used occupation as the frame for understanding coping styles, with the assumption certain coping styles would dominate specific occupations. Avraham, Goldblatt, and Yafe (2014) noted research on EMS provider coping should consider it not only from a general occupational-specific perspective but also in light of the realities of the job points. EMS providers must have general coping as well as coping on the way to a job, on a job, and after a job, all of which may be different.

Overall, studies examining coping in EMS providers have indicated they are likely to use avoidance, self-control, and disengagement to deal with stress. Most significantly, they often fail to mobilize social support, which could positively affect their stress experiences (Young & Cooper, 1999). Palmer (1983, as cited in Young & Cooper, 1999) found the EMS personnel generally used five approaches to coping: educational desensitization, humor, language alternation (technical language or jargon), scientific fragmentation (referring to patients by their symptoms), and rationalization. Thompson and Suzuki (1991, as cited in Young and Cooper, 1999) found that EMS providers most commonly used self-control, escape/avoidance, distancing, and thoughtful problem solving to cope. Social support was found to be used less among EMS providers than were logic and reason (Young & Cooper, 1999).

Types of Coping

Although many different potential coping behaviors exist, much of the research on first responders has been focused on three areas: alcohol and drug use, social support, and humor. Alcohol and substance abuse probably receive attention because of the obvious harmful and direct implications to the person and the job. Such behaviors are also easily quantified in self-reports and can be independently confirmed. Social support is at the heart of the occupation itself, with the notions of fellowship and brotherhood making it a likely focus of examination. Finally, humor is among the most intriguing of the coping methods, especially the emphasis on dark or black humor.

Alcohol and substance use. It is widely assumed that drinking behavior is, to some degree, related to stress and attempts to alleviate stress (Armeli et al., 2000; MacLean & Lecci, 2000; Carey & Correia, 1997). Although not a simple association, the consumption of alcohol is posited to be part of a tension-reduction strategy with both psychological and physiological aspects (Armeli e al, 2000). The stress vulnerability model of alcohol consumption and the tension reduction hypothesis (Conger, 1956) suggest, when there is a stronger belief that the outcome of alcohol consumption will be positive, including reduction of tension or creation of pleasure, those with limited coping skills may drink in response to stressful situations (Armeli et al., 2000). Drinking behaviors may specifically be related to avoidant coping behaviors (Armeli et al., 2000). The notion of the "cop bar" or going out after work to decompress with a few drinks is familiar to most as mean of reducing the tension associated with a day's work. Emergency first responders, as an occupation group, are generally assumed to be drinking populations (Sterud et al., 2007) who use alcohol as part of the bounding experience (Lindsay, 2008).

Different types of stress can also affect the rate of alcohol consumption as a coping mechanism (Dawson, Grant, & Ruan, 2005). Bray, Fairbank, and Marsden (1999), using a large U.S. military sample of over 16,000 participants, found "substantial substance abuse and perceived high stress in the military" (p. 239), with male military personnel reporting work stress was positively associated with heavy drinking while family-effect stress appeared to have no effect, although the same did not hold true for drug use. Studies have indicated that workplace attitudes influence high-risk drinking behaviors (McNeill, 1996), as well as occupational environments (Bray et al., 1999). These behaviors include drinking both on and off duty.

Whether certain occupations push those employed in the field to drink more than those in other occupations or in the public in general is unclear. Studies of police officers have indicated that alcohol consumption is correlated with stress (Violanti, Marshall, & Howe, 1985), but whether the rate of alcohol consumption is higher among police officers than in the general population is unclear (Lindsay, 2008). Job satisfaction and other specific job-related factors and conditions may also be as important as the occupational class in general although studies have revealed only modest associations (Martin & Roman, 1996; Murphy et al., 1999). An extensive search did not reveal any studies that specifically examined EMS drinking behavior alone. Studies on police officers' alcohol use have revealed high potential for use and abuse of alcohol by officers. Similar limited studies of firefighters have indicated the rate of problematic alcohol consumption is also high and can result in short- and long-term consequences (Boxer & Wild, 1993; Murphy et al., 1999).

Drinking behavior does not appear to be limited to police officers in the United States. Saunders et al. (1993) found that 3% of the Australian police officers studied showed behaviors consistent with alcohol dependency, 30% drank to harmful levels, and more than 34% reported

occasional binge drinking. Davey et al. (2000) found the amount of alcohol reported consumed by Australian police officers in a single sitting was higher than that reported by the average person. They also found, while police officers were less likely to report they drank every day, compared to the average person, they were also less likely to report that they abstained from alcohol completely. Officers who were younger, divorced, or separated and had 4-10 years on the job showed the highest risky drinking behaviors (Davey et al., 2000).

Early research on gender and drinking indicated men were more likely to use alcohol consumption as a means of coping than women were (Armeli et al., 2000). Because no studies examining drinking behaviors among EMS providers were found, no evidence with respect to sex-based differences is available. Little research has addressed gender-based drinking among police officers, but what is available has indicated that female drinking behaviors overall are similar to those of male officers, differing from gender drinking information found for the public in general (Rallings et al., 2005). Kraft et al. (1993) found, for those who worked in male-dominated occupations, the drinking rate for both men and women was 1.5 times higher than in non-male-dominated occupations. Rallings et al. (2005) found that harmful drinking behaviors for female police officers increased slightly over time, indicating that women may have certain unknown occupational risk factors that increase their drinking behaviors. The same may be true for female EMS providers, but to date, the issue has not been examined.

Social support. Social support or supportive relationships can help an individual cope with stress. Good relationships with people can reaffirm the person's competence and self-worth (Potter, 2005). Social support can have many different sources. It can come from coworkers, supervisors, work organizations, and fraternal organizations, as well as friends and family. Social support is generally considered positive interactions among people involving passing of

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information, offering material support, or providing emotional support (Diong et al., 2004; Shelton & Kelly, 1995). A strong social support system is often of one the best defenses and coping mechanisms for dealing with stress (Shelton & Kelly, 1995). Those under a great deal of stress often feel isolated from those around them, and the isolation, in turn, can further increase stress. Developing, actively cultivating, and maintaining support systems have long been argued as a key component of well-being. Although it may seem intuitive that increased social support should result in decreased stress levels, the literature has indicated the relationship may not be so clear cut (Anderson, Litzenberger, & Plecas, 2002). For example, high and low levels of stress may be moderated differently by social support. The effects of social support are also likely influenced by the overall context of the stressors and individual appraisal of the stressors. The sources of social support within this context make analysis of the influence of social support more complex.

  Humor. One of the most well-known popular cultural examples of use of humor as a coping mechanism is the television show *M*A*S*H*, which depicted a group of army doctors and nurses working in an army field hospital during the Korean War. Unlike other medical dramas or shows based in wartime, *M*A*S*H* presented a unique perspective on war. It focused on serious issues that emerge in times of war and affect society in general but dealt with these issues using raw or dark humor. In episode after episode, the characters clearly saw using humor as a means of coping with the daily stressors they faced. Although the show may have been a fictionalized account, the use of humor presented was very real.

  Steve Berry, a noted cartoonist who focuses on EMS topics, argued EMS is a stressful occupation and "if you can laugh at what hurts you, you will survive" (as cited in Goodwin, 2011, p. 27). Some studies have found as many as 90% of EMS providers admit to using dark

humor to cope (Villeneuve, 2005). Shelton and Kelly (1995) argued that "there ain't much fun in medicine but there is a heck of a lot of medicine in fun" (p. 11). This idea is similar to the old adage that humor is the best medicine and supports the notion that humor is good both in the short and long term. The ability to see humor in an otherwise humorless situation provides a new and different perspective. It allows a person to take a step back from the negative and begin to reformulate the event or experience in more positive terms. Freud saw the use of humor and laughter as a defense mechanism (Lefcourt, 2001). Humor increases pleasure while decreasing pain, making it the ideal defense mechanism (Seaward, 2004). It allows the process of cognitive reframing by facilitating re-interpretation of events in a less stressful manner (Moran & Massam, 1997). Humor is also an important part of self-actualization (Seaward, 2004) and self-preservation in that humor is often found to be associated- with optimism (Lefcourt, 2001).

In several studies of police officers, humor has been cited as a coping mechanism. In these studies, officers often indicate that black or dark humor helps them cope with the daily stressors they face. The participants in a study by Wright and Powell (2006) emphasized that such humor was never meant to be derogatory or amusing at the expense of victims but was simply a coping mechanism. One officer went as far as to suggest that humor was a way to buffer and prevent internalization of the traumas officers see every day (Wright & Powell, 2006). Joking and using humor on the job may not be limited to job-based experiences. Pogrebin and Poole (1988, as cited in Moran & Massam, 1997) identified four type of humor in police work. The first type is jocular aggression, which allows officers to express their dissatisfaction with survivors and the organization. The other types are audience degradation, diffusion of anger or tragedy, and normative neutralization. All could be applied appropriately to EMS providers as well. Morash et al. (2006) found that both male and female police officers engage in sexual

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humor. While such behavior is often in violation of federal, state, local, and agency policies, it is widely used and often associated with the use of profanity. Whether the effect and benefit are equal for male and female police officers is not known. Men and women appear to use humor differently, with women being more likely to engage in self-deprecating humor (self-focused humor) and men preferring wit and jokes (humor directed at others; Lefcourt, 2001). Men also tend to prefer hostile humor (e.g., racist jokes) and slapstick while females tend toward anecdotal humor (i.e., telling funny stories; Lefcourt, 2001). It could be argued that female police officers, like female EMS providers, may not reap the same benefits in that they may feel that the male-dominated work environment has thrust such behavior upon them without their full consent.

In addition to the empirical data supporting the use of humor as a coping mechanism, there is an intuitive understanding among those who work in certain fields, like emergency first responding, that humor, which at time may be dark and off color, is an essential part of the coping process (Miller, 1995). Miller (1995) suggested such humor should be encouraged among personnel, not only as a coping mechanism, but also as a way to build camaraderie and social support. In addition, laughing may be an effective way of communicating that helps first responders: if they can laugh together, they can do other things together (Moran & Massam, 1997). Moran and Massam (1997) cited use of the term *crispy critter* (EMS jargon for a patient who was badly burned) as a means of communication that clearly has a dark humor component.

Although the benefits of humor have been documented, it may not always be beneficial because "at a certain point black humor becomes a sign of excess stress" (Shelton & Kelly, 1995, p. 181). Not only can humor be a telltale sign of distress, but also humor could erect a barrier that prevents providers from dealing with the experiences and may contribute to the masculine

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culture (Moran & Massam, 1997) that dominates first responding. Thus, it may play a role in stress and burnout, especially for female providers.

The Literature on EMS Coping

Only a handful of studies have been focused specifically on EMS coping, and none have addressed provider sex as a component in the overall process, despite the literature indicating possible sex differences in coping. Several studies have indicated methods of coping classified as *avoidant coping* can predict greater stress in EMS providers (Prati et al., 2011). Self-blame, (Pratie et al., 2011) and self-distraction (Prati et al., 2011) have been shown to have little effect on stress reduction for EMS providers but have a positive correlation with burnout and other similar concepts, like compassion fatigue.

Social support is generally considered in the coping literature as a positive means of coping and stress reduction. Prati et al. (2011) suggested EMS providers who conceptualize the events they experience in terms of collective efficacy[25] have reduced stress and improved quality of life because the approach has implications for coworker social support built into the model. The nature of the life-and-death aspect of the work environment, along with the need to build implicit trust relationships, creates an intimate work environment that allows coworkers to confide in each other and build a social support network that may be stronger than the ones they have with family members (Beaton et al., 1997). For EMS providers, the use of social support has been mixed (Beaton et al., 1997). In a study of Vermont and New Hampshire EMS providers, 37% reported talking with colleges as a mean of coping (Villeneuve, 2005). Studies have indicated that work-based social support is more influential than outside social support in addressing factors related to work success and health (Beaton et al., 1997; Lowery & Stokes,

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[25] Prati et al. (2011) defined *collective efficacy* as "what people choose to do as a group, the effort they put into it and the perception of the group's ability to accomplish its major tasks."

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2005) and that those with low work social support may be at increased risk for adverse health outcomes (Beaton et al., 1997). Support from supervisors was found significant in dealing with potentially stressful event for EMS providers (Brough, 2005a). Dysfunctional social support among paramedic students was found to contribute to predictable PTSD symptomology (Lowery & Stokes, 2005). The importance of coworker social support is so significant that some have begun to advocate for the installation of peer support officers (PSO), whose jobs will be not only to provide psychological support but also to train and develop peer support in the workplace (Scully, 2011).

EMS providers are often reluctant to engage in full emotional self-disclosure (Lowery & Stokes, 2005). In a sample of paramedic students, Lowery and Stokes (2005) found that negative attitudes towards emotional self-disclosure aided in the prediction of burnout. Furthermore, traditional psychological therapies may not work for EMS providers for this reason combined with the overall "tough guy" attitude often presented by those in the field (Miller, 1995). Problem-solving coping was not found to have a direct effect on the relationship between stress appraisal and compassion satisfaction among Italian rescue workers (Prati et al., 2011). In one of the few studies that addressed gender and coping in EMS, Essex and Scoot (2007) found significant sex difference in the coping strategies used, with women indicating they were more likely to talk to others (i.e., seeking out social support). However, beyond this study, very little specific attention has been focused on coping in EMS.

Chapter 4: Methodology

Research Design

This study was primarily a descriptive study designed to add to the understanding of stress, burnout, and coping by focusing on aspects of these concepts for EMS providers in the context of gender, using original data collected for this study. Because few scholarly articles have addressed stress, burnout, and coping for EMS providers, this study was focused on providing accurate descriptive information indicative of differences among EMS providers through the variables of interests, especially gender. This study further addressed the belief that levels of perceived stress and types of coping can predict burnout by examining these beliefs in a sample of EMS providers to understand what if any role gender plays in this prediction. A quantitative research strategy was used, represented by a cross-sectional design, with the goal of collecting data from a large number of EMS providers on all aspects of the concepts of interest.

An online survey was developed for the implementation of this method. A survey was determined to be the best approach for collecting a large number of responses. In addition, it was compatible with the style of paperwork EMS providers have experience filling out. The online format was determined to be the best way to solicit widespread participation and to ensure the survey was completed at participants' convenience. The survey (Appendix A) includes reliable and valid measures to capture the concepts of stress, burnout, and coping, as well as theoretically associated variables as discussed in the literature, such as violence, health, and assorted demographic variables. A non-probability (i.e., volunteer convenience) sample of EMS providers was used. Participants were recruited using the social media site of Facebook. As an incentive to participate, EMS providers were entered in a raffle to win a $25 gift card. Data were analyzed using descriptive statistics, correlations, *t* tests, and regressions.

Participants

The data for this research were collected from a non-probability (i.e., convenience) sample of 1350 EMS providers, representing both male ($n = 792$) and female ($n = 558$) EMS providers affiliated with five Facebook groups focused on the profession. The sample consisted of men and women of both certification levels (EMT and paramedic), representing varying age groups, ethnicities, and demographic characteristics. As an incentive to participate, group members were offered the opportunity to enter a raffle to win a $25 gift card. Postings requesting participants were posted twice in each of the five groups.

Informed Consent and Confidentiality Notice

All participants connected to the online survey of their own free will via a link provided in the Facebook groups. No separate informed consent form was signed because such a form would compromise the anonymity of the survey response and could deter potential participants. Consent was considered given by completion of the survey. The lack of a formal consent form was approved by the Institutional Review Board of the City University of New York. The introduction to the online survey clearly indicated to participants that the focus of the study was to examine EMT and paramedic stress, that participation was voluntary, and that all responses were being collected anonymously. The survey was set up though the collection website to avoid collecting any information from respondents, including computer IP addresses. It was also designed so that no question had to be completed and questions could be skipped without direct consequence. The end of the survey provided participants with a link to the raffle entry page.

The raffle entry page was designed to have no connection to the actual survey, including no computer IP links. Participants could enter the raffle information without any consideration for what was completed on the survey itself. The information entered in the raffle page could not

be linked in any way to the survey, further assuring anonymity. The data collected from the surveys themselves were stored on the SurveyMonkey website, which hosted the survey, and on the principle investigator's personal flash drive as an SPSS file. Surveys were assigned a number from one through 1,356, based on the order in which the surveys were received. These numbers acted as unique identifiers for each response set, allowing omission of any personal information through which participants may have been identified.

Data Sources

The data were drawn exclusively from the online surveys completed by participants. The data were stored on the SurveyMonkey website and on the principle investigator's flash drive in an SPSS file. No other additional data sources were used for this research.

Data Collection and Procedure

Data were collected through the Internet exclusively. The primary online sites used in this study were Facebook and SurveyMonkey. The online format was selected because it readily provided access to a large number of EMS providers via a centralized format. Because participants were solicited via the online format, continuing the online format for the survey was logical. The method did not allow for determination of response rate, nor did it allow for verification of respondents' information, but it was extremely effective in collecting a large number of responses in a short time. Facebook served as the exclusive site for recruitment, with all surveys completed on SurveyMonkey.

Facebook is an online social media site that allows users to create an account and profile for free. Once created, the account is used for interaction with other users through postings of status updates and pictures and shared game playing. Online social interaction can occur among people who already know each other, such as friends and family, and can allow individuals to

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connect with others around the world with similar interests. These shared interests can be personal or professional. Connections with others who have similar interests occur most often in online group forums. A group can be created by any Facebook account holder. The group creator has the ability to set the topic of the group, as well as guidelines and rules for operation of the group and membership criteria. Groups can operate as closed or open groups. A closed group allows the group administrator to control and limit group access. Membership in a closed group must be approved by the group administrator. Open groups are open to all Facebook members, with no specific approval of the group administrator needed. Facebook members can find groups that meet their personal and professional interests by actively searching for groups or by selecting from groups recommended by Facebook.[26]

For this study, participants were recruited through Facebook groups for EMS personnel. A search of Facebook groups was conducted to select the groups that would provide the greatest pool of potential respondents. The groups used for recruitment included EMS Pulse, EMS Mentoring, Jamaica Hospital EMS, Paramedics on Facebook, The Code Green Campaign, The Forgotten Causalities of 9/11, and The Voluntary Units of NYC EMS.[27]

EMS Pulse is a closed group limited to EMTs and paramedics and has a listed membership of 2,212 members whose expressed purpose is to offer EMS providers training and continuing medical education links, as well as information on events and other relevant and interesting information related to EMS. EMS Mentoring Society is an open group with 3,571 members and is for EMS students and new and experienced providers, with the expressed purpose of connecting students and providers in a forum that allows discussion of issues that

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[26] Facebook group suggestions are based on a proprietary algorithm but are heavily based on what an individual includes in his or her personal profile; profiles of friends: Facebook activities, including comments, pictures, and likes; and general internet activity.

[27] The author of this paper was a prior member of all of these groups as part of her work as a working paramedic and EMT instructor.

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EMS providers encounter in patient care and in daily activities, including issues that providers many not have encountered in their formal education but may encounter in the field. The group also is focused on removing the "war story" element of EMS education, providing real mentoring and guidance. In this group, participants often post patient care scenarios and request advice on issues ranging from patient care to workplace conflict and situations unrelated to patient care.

Jamaica Hospital EMS is a closed group with 188 members consisting of those who are current and past EMS employees at Jamaica Hospital Medical Center in Jamaica, New York, operating as part of the larger New York City 911 EMS responding system. The group also includes several EMTs and paramedics employed by other agencies and working closely with the Jamaica Hospital personnel. These people have become trusted members of the group. The Voluntary Units of the NYC EMS is a public group with 1,303 members, created to connect the non-Fire Department of New York City (FDNY) EMS providers who operate in the city's 911 system under the nominal auspices of the FDNY but who do not receive the benefits, training, and resources afforded FDNY EMS providers. The group provides a forum for general EMS-related topics as well as concerns and issues that may arise from the unique status these providers play in the overall system.

EMS: The Forgotten Causalities of 9/11 is a closed group with 6,163 members. The group was originally started in memory of the nine individuals who died on 9/11 while acting in their roles as EMS providers and the 13 other EMS providers who were killed on 9/11 working in other capacities (largely as firefighters and police officers). Organizers felt EMS providers were often the ignored group in discussions of 9/11. Often, memorials and ceremonies have mentioned NYPD and FDNY but not EMS personnel. The creators of this group believed it was

way to honor publicly the EMS 9/11 victims' memories and to continue to honor the memories of those EMS providers who continue to suffer from 9/11-related illness. The group has evolved into a general forum for EMS providers to discuss all aspect of EMS work. The Code Green Campaign is a group created by a nonprofit organization with a Facebook page that has been liked by over 21,000 people. The group was started in March 2014 by EMS providers who were concerned about mental health, suicide, and substance abuse among EMS providers. Their goal was to open a dialogue and create a solution through awareness and education. The organization consented to posting links to this study information and survey on its Facebook page.

The Facebook pages were selected because of the familiarity of the principle investigator with the pages and their content. All of the pages were determined to be targeting the population of interest for this study. Although determining that all members of the groups were actually EMS providers was not possible, the content and activity on the groups' pages indicated those most likely to respond would be EMS providers. The creators of the pages or groups were contacted via private Facebook messages (Appendix B) describing the purpose of the research and including a link to the online survey (Appendix A). Each page creator or administrator was asked for permission to post a short introduction and a link to the survey (Appendix C) on his or her site. All group administrators allowed the link to the survey to be posted. Each group had a unique link to the same survey, allowing for tracking the number of responses from each group. The request for participation was posted to each of these groups twice, 30 days apart.

SurveyMonkey is a professional survey/data collection site. With a paid plan, a survey can be hosted by SurveyMonkey, and data collected and stored on the site. The site allows the survey creator to set various parameters concerning how the survey is presented and completed and which information is retained and stored. The survey for this present study was manually

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entered on the site. Once entered, the survey was formatted to ensure ease of use. Every effort

was made to ensure that the formal measures included in this survey mirrored their original

versions as much as possible. The survey was formatted to display the first page as an

information page with basic information about the study, contact information for those involved,

and consent information. By continuing to the second page of the survey, participants were

consenting to participate.

The second page included the entire survey, presented as a single webpage. Participants

scrolled down the page to view all the survey questions. At the end of the survey, participants

were directed to a second page (Appendix D) via a web link that allowed them to include their

personal information and be entered in a raffle for one of 25 $25 gifts cards. The selected

criteria on SurveyMonkey specified that no IP address information was collected or retained for

the initial survey and the raffle entry page. Furthermore, the criteria specified the link between

the survey page and the raffle-entry page did not allow collection or retention of any personal

computer information, nor could the raffle page be back linked to the survey or its contents.

Instruments

The contents of the survey (Appendix A) were selected from literature on stress, burnout,

coping, and EMS providers. The form was a single webpage that allowed respondents to scroll

down as they answered questions. The printed version of the survey was 12 pages long. While

appearing as one continuous form for participants, the survey included several separate parts.

The first part, with the first 13 questions, included demographic questions addressing

certification level, gender, ethnicity, work status (e.g., part time or full time), EMS agency type

(e.g., private, municipal, volunteer), country, primary service area (e.g., rural, urban, suburban),

shift worked, number of years in EMS, age, number of children, and education level. The

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questions' wording and response choices were modeled on previously published studies that had included the same variables. The purpose of these questions was to collect basic demographic information and ancillary information to help in understanding stress, burnout, and coping in EMS providers in terms of sex differences. The information was selected based on theoretical approaches and previous literature discussed previously in this paper.

The second part of the survey included a set of questions that addressed potential EMS-specific stressors. Although not a validate measure beyond face validity, the reason for the inclusion of this section was threefold: to lend credibility to the study as whole among potential participants and increase willingness to participate and provide accurate information, to provide preliminary data for EMS-specific stressors that could be examined more closely at a later date for validity and reliability, and to examine the items individually in terms of gender as part of follow-up research. First, getting members of an otherwise closed group to participate in the survey was crucial. EMS providers, like other first responders, are reluctant to open their fraternal world to outside researchers, who might not understand the reality of the occupation. Thus, one purpose of this section was to send a message that the researcher in this project not only cared about EMS as a population of study but also understood the world of EMS providers. This message would encourage respondents to complete the study and do so in an honest manner by enhancing their trust and confidence in the overall goals of the project.

Currently, no EMS equivalent to the Police Stress Questionnaire (PSQ; McCreary & Thompson, 2006) is readily accessible for measuring specific EMS stressors.[28] Eventually, to

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[28] In my research I came across one measure that purported to measure EMS-specific stress. After several attempts to locate the measure, I contacted the author via e-mail. The author indicated the measure was created as part of a government-funded project and, when he left his position, he did not take anything with him, including the actual measure, scoring instructions, and its validity and reliability information. While he acknowledged the importance of this present study, he advised he could not directly help in locating the measure and believed no one directly involved in the original development was still available to help in locating it.

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measure and address EMS stress accurately, a more specific measure for EMS providers should be developed. The questions in the second section of the survey should help lay the foundation for creating an EMS-specific stress assessment. Even with only superficial validity, the examination of sex-based differences in the responses to the individual questions may provide interesting preliminary information useful for future study and help provide future understanding of sex differences found in this study.

The third section of the survey included three reliable and valid measures: the Perceived Stress Scale (PSS; Cohen, Kamarck, & Mermelstein, 1983), the Maslach Burnout Inventory (MBI; Maslach & Jackson, 1981), and the Brief COPE (Carver, 1997). These three items, discussed later in this paper, were the only formal, validated instruments used in this survey. The next section of the survey was composed of questions addressing perceptions of workplace safety and violence. The questions were developed for this study based on the literature on workplace safety and violence. The questions were shown to have face validity based on informal examination of the questions by several EMS providers. The questions were designed to assess how safe EMS providers felt at work and included some simple questions about whether respondents had been victims of certain general types of violence and, if so, by whom. These questions are of importance for all EMS providers but have increased meaning for female providers because of the nature of EMS work and the EMS work culture.

The questions about safety in the work environment were followed by two questions about respondents' overall health status. These questions were created by me and evaluated by a small group of college professors. They appeared to have sufficient face validity. The next question asked respondents to indicate the stress help options they knew were available in their workplaces. This question was designed to elicit realistic information about providers' work

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support systems. The final question asked participants' opinions concerning the extent to which

concerns about confidentiality might influence help-seeking behavior for stress-related problems.

This question was designed to address the assumption that EMS providers, like police officers,

do not seek help for fear the ability to do their jobs will be questioned and their help-seeking

behavior will directly affect how they are treated at work.

Validation

The only validated measures used in this study were the PSS, MBI, and Brief COPE. All

three measures are widely used and validated instruments using self-report methods to assess the

constructs of interest. Although these measures are not EMS-provider specific and have not

been validated for EMS providers, they have been used to examine similar occupations with

good results.

Perceived Stress Scale. The PSS (Cohen et al., 1983) is a general measure of perceived

stress. It one of the most widely used, cited in over 7,000 published studies (Smith, Rosenberg,

& Timothy Haight, 2014). Available free of charge, it is designed for a community sample with

at least a junior high school education. The items are considered easy to understand (Lavoie &

Douglas, 2012). The PSS assesses the amount of stress a person perceives and appraises as

stressful for situations and events, using questions in a general context to determine how

unpredictable, uncontrollable, and overloaded respondents find their lives (Cohen, 1986). It

focuses on the individual perception of stress because the literature has indicated the severity of

stress is strongly related to one's own perception and evaluation of the stress. One of the

strongest assets of this measure is that it is not bound to any specific life events or experiences as

are some other widely used measures of stress (Cohen, 1986; Lavoie & Douglas, 2012). The

PSS was designed to complement the cognitive appraisal model of stress (Lazarus, 1966) and the

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extension of this model (Lazarus & Folkman, 1984) previously described in the literature review (Cohen, 1986; Lavoie & Douglas, 2012).

Participants are asked about their feelings and thoughts in the preceding month. The original scale included 14 items, with updated versions including only 10 items (Cohen & Williamson, 1998). The 10-item version of the measure, now considered the preferred version by the authors (Smith et al., 2014), was used in this present study. Items are presented as statements for which respondents are to indicate how they have felt or thought about the topic in the previous month using a 5-point Likert scale (0 = *never*; 1 = *almost never*; 2 = *sometimes*; 3 = *fairly often*; 4 = *very often*). Six of the items are negatively worded. The authors of this measure did not advocate for using factoring with it, instead recommending an overall score. A total score is obtained by reverse scoring the four positively worded items (Items 4, 5, 7, and 8) and then summing the total. Because it is not intended for clinical usage, no cut-off scores are provided. The importance or significance of scores is based on the relative and subjective nature of the scoring related to the population of interest, with higher scores generally reflecting greater levels of stress (Smith et al., 2014). Some studies have used cut-off scores, with low scores ranging from 0-11, average scores ranging from 12-15, high scores ranging from 16-20 and very high scores being over 21 (Kumar & Sundaram, 2014).

The PSS has adequate internal and test reliability. The PSS-10 has a Cronbach's alpha reliability coefficient of .89 for the total score of all 10 items (Roberti, Harrington, & Storch, 2006). Smith et al. (2014) found a reliability coefficient for items ranging from .564 to .791 and an overall Cronbach's alpha of over .70. This study showed an overall Cronbach's alpha for the PSS was .886, indicating high reliability consistent with other findings. The PSS has been shown to be correlated with life event scores (Cohen et al., 1983), depressive and physical

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symptoms (Cohen, 1986; Cohen et al., 1983), the Visual Analogue Scale (VAS, an empirical measure used by occupational physicians to assess stress; Lesage & Berjot, 2011), the State Trait Anxiety Inventory (Roberti et al., 2006)[29] General Distress Subscale of the Stress Arousal Scale 4 (SAS4; Smith et al., 2014), emotional intelligence[30] (Panda, 2008), and social anxiety (Cohen et al., 1983).

The PSS is useful in that it not only can predict risk factors for behavior disorders and health issues but can also "be used to look more closely at the process by which various moderators of the stress . . . relationship operate"(Cohen et al., 1983, p. 393). A strength of this measure is that it is based on individual perception, which coincides with the idea of appraisal of stress. That is, events or experiences of themselves are only as stressful as an individual perceives them to be. The PSS has been validated in comparisons of mentally healthy and unhealthy populations (Lavoie & Douglas, 2012). Women consistently report higher overall scores on all versions of the PSS, as well as for perceived stress on the factor model (Lavoie & Douglas, 2012). The factor model indicates no gender differences in perceived coping (Lavoie & Douglas, 2012). Interpretations of gender differences have been found to be true (i.e., despite the consistency of gender differences found, it measures the same construct in both men and women), but caution is still advised in interpretation (Barbosa-Leiker eat al., 2013, Lavoie & Douglas, 2012). The widespread use of the PSS and its proven reliability in multiple languages (Chaaya, Osman, Naassan, & Mahfoud, 2010; Lee, Chung, Suh, & Jung, 2015; Mimura & Griffiths, 2004; Remor, 2006) and for multiple populations (Andreou et al., 2011; Ansari, Oskrochi, & Stock., 2013; Chaaya et al., 2010; Kaya, Tansey, Melekoglu, & Çakiroglu, 2015;

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[29] A high correlation was found between the PSS-10 and the STAI Total Score and low to moderate correlations with the STAI-A and STAI-D (Robtert et al, 2006).
[30] This correlation is a negative correlation.

Kumar & Sundaram, 2014; Örücü & Demir, 2009; Reis, Hino, & Añez, 2010; Remirez & Hernandez, 2007; Waldman et al., 2009) lend credence to its use with this study.

Although the PSS has not been used to study EMS providers as a specific occupational group, it has been used to study other subsets of health professionals (Jahromi & Hojat, 2014, Waldman et al., 2009). It has also shown reliability when used with other first responder occupations, including police officers (Charles et al., 2011; Norvell, Hills, & Murrin, 1993; Petrovic, Kozel, Postuvan, Mars, & Podlogar, 2012; Queiros, Melo, & Marques, 2011; Wang et al., 2011) and firefighters (Lalić, Bukmir, & Ferhatović, 2007, Lee, Ahn, Jeong, Chae, & Choi, 2014). Although this measure may not address some EMS-specific stress in populations it has been previously shown to be valid and reliable with, its use in this study was appropriate.

Maslach Burnout Inventory. The MBI is the leading measure of burnout. It was developed to assess the burnout concept as described by Maslach (Maslach & Jackson, 1981). Three version of the MBI currently exist: the general survey (GS), the human service survey (HSS), and the education survey (ED). The general survey was the first of the three to be created, but as research on burnout developed, the GS was modified and tailored to specific occupational subsets, creating the HSS and ED versions. All three versions are based on the same conceptual framework. They differ in their wording and in cut-off scores for levels of burnout. This study uses the HSS version (Maslach & Jackson, 1981), which was designed to assess individuals in human service institutions and health-care occupations (Maslach et al., 1996). EMS can be seen as both a human service institution and part of the larger health-care field because of the various components patient care and interactions, making the use of this measure appropriate.

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The MBI-HSS addresses three aspect of burnout: emotional exhaustion, depersonalization, and personal accomplishment. The measure has 22 items that respondents answer based on their feelings about their jobs. Using a 7-point Likert scale, respondents select responses that correspond to how often they feel a certain way about their jobs (0 = *never*; 1 = *a few times a year or less*; 2 = *once a month or less*; 3 = *a few times a month*; 4 = *once a week*; 5 = *a few times a week*; 6 = *every day*). On the Emotional Exhaustion (EE) Subscale, a 9-item subscale, low scores range from 0-16, moderate scores range from 17-26, and high scores are those over 27. High scores on the 5-item Depersonalization (DP) Subscale are scores over 13, with moderate scores ranging from 7-12 and low scores from 0-6. On the 8-item Personal Accomplishment (PA) Subscale, high scores are 39 and over, moderate scores range from 32-38, and low scores are from 0-31. The PA subscale is interpreted in the opposite direction from the other two subscales; that is, lower scores indicate higher burnout rates (Maslach & Jackson, 1981).

The original evaluation of the MBI-HSS (Maslach & Jackson, 1981) found the measure had good reliability, with reliability coefficients all greater than .5 and test-retest reliability showing significance for all coefficients at the .001 level. In this study, analysis of the three MBI subscales of EE, DP, and PA showed high Cronbach's alphas of 911, .746, and .810 respectively. Later studies indicated the MBI had an internal consistency alpha of .70 to .90 (Scahufeli & Enzmann, 1998). Overall, inter-rater reliability was high (Schaufeli & Enzmann, 1998). Test-retest reliability showed good stability over time, .60 to .82 across periods of up to one month. Maslach and Jackson (1981) originally demonstrated the validity of the MBI-HSS by comparing scores on the measure for individuals with behavioral ratings made by a person close to the individual. They also found the MBI highly correlated with job behavior thought to

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be associated with burnout, as well as the Job Diagnostic Survey (JDS). Predictive validity of the MBI is strong. Studies have found levels of emotional exhaustion predicted an individual's likelihood of dropping out of a profession in the following 5 years (Schaufeli & Enzmann, 1998). In addition, the MBI shows good factor and convergent validity (Schaufeli & Enzmann, 1998).

The MBI-HSS has been used to examine diverse samples worldwide (de la Fuente et al., 2013; Hallberg & Sverke, 2004; Patton & Goddard, 2003; Richardsen & Martinussen, 2004; Sterud et al., 2007; Tang, 1998). The populations it has been used to examine include human service providers (Brooking et al., 1985; Gomez & Michaelis, 1995), service providers for individuals with disabilities (Chao, McCallion, & Nickle, 20005; Gomez & Michaelis, 1995; Hensel, Lunsky, & Dewa, 2012), Italian nurses (Loera et al., 2014; Pisanti, Lombardo, Lucidi, Violani, & Lazzari, 2012), South African Nurses (Colff & Rothman, 2014) Dutch medical professionals (Meszaros, Adam, Szabo, Szigeti, & Urban, 2014), medical students (Enoch, Chibnall, Schindler, & Slavin, 2013; Goh et al., 1999), doctors (Goh et al., 1999; Tomljenovic, Kolaric, Stajduhar, & Tesic, 2014), Swedish health-care workers (Hallberg & Sverke, 2004), eating disorder treatment providers (Warren, Schafer, Crowley, & Olivardia, 2013), teachers (Aluja, Blanch, & García, 2005, Brewer & McMahan, 2003), Taiwanese nurses (Lee, Chien, & Yen, 2013), Finnish nurses (Kanste, Miettunen, & Kyngäs, 2006), Sri Lankan nurses (Samaranyake & Seneviratne, 2012), youth workers (Barford & Whelton, 2010), and youth corrections workers (Gould, Watson, Price, & Valliant, 2013). In addition, it has been used to examine emergency first responders, including police officers (Briones & Boutin, 2013; de la Fuente et al., 2013; Essex & Scott, 2007; Hawkins, 2001; Kop et al., 1999; Loo, 1994; Robert, 2004; Stearns & Moore, 1993; Sterud et al., 2007; Storm & Rothman, 2003; van der Velden, Kleber, Grievink, & Yzermans, 2010) and firefighters (Lourel, Abdellaoui, Chevaleyre, Paltrier,

& Gana, 2008). Only a few studies have attempted to use the MBI to examine ambulance personnel (Sterud et al., 2007; Sterud et al., 2011), but its use in this present study is warranted not only by its previous use with EMS and other first responder but also by its specific focus on the assessment of health-care workers.

Brief COPE. The Brief COPE (Carver, 1997) is a general measure of coping. It is a 28-item measure, representing a shortened but comparable version of the larger 60-item version of the COPE (Carver, Scheier, & Weintraub, 1989). The measure was originally designed with medical patients in mind but has been used with other populations (Cooper et al., 2008; Ito & Hofmann, 2014; Mohanraj et al., 2015; Su et al., 2015; Yusoff, Low, & Yip, 2010) and has been studied in numerous non-pathological international populations (Doron et al., 2014; Ito & Hoffman, 2014; Kapsou, Panayiotou, Kokkinos, & Demetriou, 2010; Su et al., 2015). Although not designed especially for EMS providers, presenting the possibility that certain EMS coping strategies may not be identified, the measure's use for this study is acceptable because it has been successfully used in examining other health-care-related occupational groups (Alosaimi, Almufleh, Kazim, & Aladwani, 2015; Balducci et al., 2008; Rauf & Farooq, 2015; Volker et al., 2010; Wallbank & Robertson, 2013), corrections officers (Gould et al., 2013), and the police (Maran, Varetto, Zedda, & Ieraci, 2015). Concerns about participants' potential fatigue when answering this part of the survey made the use of the shortened COPE more desirable.

The Brief COPE has 14 subscales (as opposed to 15 in the full version). The subscales address self-distraction, active coping, denial, substance use, use of emotional support, use of instrumental support, behavioral disengagement, venting items, positive reframing (which includes the concepts of positive reinterpretation and growth as separate scales in the full COPE), planning, humor, acceptance, religion, and self-blame. Each subscale contains two

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items. Respondents indicate how often they have engaged in specific described coping behaviors. Each item is scored on a 4-point scale, ranging from 1 indicating *I haven't been doing this at all* and 4 indicating *I have been doing this a lot*. Higher scores generally represent greater use of the coping strategy. Carver (1997) indicated on his website that he does not believe in the ability to obtain an aggregate coping score so he has not attempted to do so with his measures. Carver (1997) did not group the Brief COPE subscales into emotion- and problem-focused coping as described by Folkman and Lazarus (1998) or into adaptive or maladaptive strategies as others have done. Much of the literature on the brief COPE and its longer counterpart groups the subscales of active coping, planning, denial, and seeking social support in the problem-focused realm and indicates the subscales of emotional support, positive reframing, acceptance, and denial are instrumental coping (Torkelson & Muhonen, 2004).

The Brief COPE has shown good reliability and validity (Cooper et al., 2008; Doron et al., 2014; Ito & Hoffman, 2014; Kapsou et al., 2010; Mohanraj et al., 2015 Su et al., 2015; Yusoff, 2011; Yusoff et al., 2010). The religion and substance use subscales show high Cronbach's alphas of 0.82 0.90, respectively, with the other subscales showing acceptable Cronbach's alphas: active coping (0.68), planning (0.73), emotional support (0.71), positive reframing (0.64), acceptance (0.57), humor (0.73), instrumental support (0.64), self-distraction (0.71), denial (0.54), venting (0.50), behavioral disengagement (0.65), and self-blame (0.69; Carver, 1997). Although Yusoff et al. (2010) found slightly lower scores in a sample of Malaysian women undergoing cancer treatments, they attributed these scores to the difference in the stages of treatment and concluded that, overall, the "Brief COPE Scale is a reliable and valid instrument" (p. 43).

For the purposes of this study, only four of the 14 subscales were analyzed. The four included active coping, behavioral disengagement, substance abuse, and humor. Although little specific research on the coping behaviors of EMS providers has been undertaken, allowing all of the subscales to be analyzed, the four subscales were carefully selected for analysis in this study based on the theoretical literature and potential importance to policy implications. Active coping was selected because its definition is most similar to problem-focused coping, although somewhat broader in terms of included behaviors. Because such coping is considered a generally better and healthier approach to coping in most cases and because men and women do not always approach problem-focused coping in the same way, logic dictated that active coping would be a focus of this study. The two variables used to compose the active coping scale for this study showed a Cronbach's alpha of .71, which is in line with scores found in previous studies as noted above.

The second subscale considered was the substance abuse scale. A great deal of speculation about substance abuse in the EMS community and the larger first-responder community has circulated over the years. When challenged in a research setting, many of the notions of first-responder substance abuse do not hold up. A concern specific to the EMS community in terms of substance abuse focuses on access to substances that can be abused. EMS providers often have greater access to these substances, including controlled narcotics. In addition, the notion that men and women do not use such substances in the same way and for the same purposes warrants examination of substance abuse as a coping mechanism in EMS providers, especially in terms of sex-based differences. The two survey items that comprise the substance abuse subscale have a Cronbach's alpha of .94, slightly higher than those found in other studies.

The third subscale selected in the Brief COPE used in this present study addressed behavioral disengagement. Based on the definition of this scale and the conception of behavioral disengagement described by the instrument's author, this subscale appears similar to the depersonalization scale of the MBI, so it warranted examination not only as a potential burnout component but also a potential coping mechanism. Although much of the literature on first responders has discussed the depersonalization aspect of burnout, to date, none has discussed the idea of behavioral disengagement as coping. The Cronbach's alpha for this subscale in the context of this study was .65, which is somewhat lower than the score obtained in other studies but still within standard acceptable limits.

The final coping subscale of interest was humor, whose Cronbach's alpha for this study was .73, which is similar to the findings of other research. Although a great deal has been written about humor in EMS, much of it has little empirical support. The literature, including nonacademic works, indicates EMS providers use humor to cope. Such literature often indicates this humor is of a dark nature and often places providers in positions in which they can be hurt professionally if observed making jokes or using humor in the presence of the wrong person. Sexual harassment and sex-based inequality are often considered to be intertwined with this use of humor. The literature has also indicated, in general, men and women use humor differently and engage in different types of humor. These findings all indicate the need for empirical examination of humor in EMS providers, especially as it is related to sex and sex divisions, not only to fill gaps in the literature but also to improve policy and procedure in the workplace.

Unit of Analysis

This study was focused on sex differences in relation to stress, burnout, and coping in EMS providers as understood in the framework of the transactional model of stress and

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Maslach's conceptualization of burnout. Although these theories acknowledge the influence of organizational and macro-level factors on stress, burnout, and coping, they ultimately focus on a micro-level or individual approach to understanding these concepts. Thus, this study was focused on EMS providers ($N = 1356$) themselves and not organizational and environmental factors.

Research Questions and Hypotheses

Using valid and reliable measure of stress, burnout, and coping, acknowledging what previous studies have indicated about sex differences in stress, burnout, and coping, this study addressed the relationship between sex and stress, burnout, and coping among EMS providers by asking if there are differences between male and female EMS providers for stress, burnout and coping. The primary research question for this study asks:

RQ[1]: What is the difference in levels of stress, burnout and coping between men and women who work as emergency first responders?

The hypotheses arising from the primary research question are as follows:

H[1]: Female EMS providers experience higher levels of perceived stress than male EMS providers do (Model 1-PSS).

H[2]: Female EMS providers experience higher levels of emotional exhaustion than male EMS providers do (Model 2-MBI).

H[3]: Female EMS providers experience higher levels of depersonalization than male EMS providers do (Model 2-MBI).

H[4]: Female EMS providers experience lower levels of personal accomplishment than male EMS providers do (Model 2-MBI).

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H^5: Female EMS providers use active coping more than male EMS providers do (Model 3-Brief Cope).

H^6: Female EMS providers engage in substance abuse to cope less than male EMS providers do (Model 3-Brief Cope).

H^7: Male EMS providers use behavioral disengagement to cope more than female EMS providers do (Model 3-Brieg Cope).

H^8: Male EMS providers use humor to cope more than female EMS providers do (Model 3-Brief Cope).

The secondary research question for this study are based on the assumption that sex-based differences exist. It address the degree to which differences between male and female EMS providers' scores on perceived stress, burnout, and coping can be attributed to sex alone and to degree to which sex can predict levels of perceived stress, burnout, and coping. The secondary research question for this study asks:

RQ^2: What is the relationship between provider sex (male/female) and stress, burnout and coping in EMS providers?

Several hypotheses, including the following, arise from the secondary research questions:

A: Is sex a good predictor of stress, burnout, and coping in EMS providers?

H^1: Sex is a good predictor of perceived stress in EMS personnel (Model 1-PSS).

H^2: Sex is a good predictor of emotional exhaustion in EMS personnel (Model 2-MBI).

H^3: Sex is a good predictor of depersonalization in EMS personnel (Model 2-MBI).

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H^4: Sex is a good predictor of personal accomplishment in EMS personnel (Model 2-MBI).

H^5: Sex is a good predictor of use of active coping in EMS providers (Model 3-Brief Cope).

H^6: Sex is a good predictor of use of substance abuse for coping in EMS providers (Model 3-Brief Cope).

H^7: Sex is a good predictor of use of behavioral disengagement to cope in EMS providers (Model 3-Brief Cope).

H^8: Sex is a good predictor of use of humor to cope in EMS providers (Model 3-Brief Cope).

B: Does sex account for a significant amount of the variance seen in stress, burnout, and coping?

H^1: Sex does account for a significant amount of variance found in perceived stress in EMS personnel (Model 1-PSS).

H^2: Sex does account for a significant amount of variance found in emotional exhaustion in EMS personnel (Model 2-MBI).

H^3: Sex does account for a significant amount of variance found in depersonalization in EMS personnel (Model 2-MBI).

H^4: Sex does account for a significant amount of variance found in personal accomplishment in EMS personnel (Model 2-MBI).

H^5: Sex does account for a significant amount of variance found in use of active coping in EMS providers (Model 3- Brief Cope).

H^6: Sex does account for a significant amount of variance found in use of substance

abuse as coping in EMS providers (Model 3- Brief Cope).

H^7: Sex does account for a significant amount of variance found in use of behavioral

disengagement to cope in EMS providers (Model 3- Brief Cope).

H^8: Sex does account for a significant amount of variance found in use of humor to

cope in EMS providers (Model 3- Brief Cope).

Variables

Independent variables. Sex was the primary independent variable of interest in this

study. Sex was measured by responses indicating either male (coded as 1) or female (coded as

2).

Dependent variables. Stress, burnout, and coping were the main concepts represented

by the dependent variables. The dependent variables were categorized under these conceptual

headings, each being assessed by valid and reliable measures. Stress was represented by the sum

of the responses of the individual to the 10-item PSS. Each of the 10 items was assigned a

numerical score and was summed as per the measure instructions. Three variables were used to

represent burnout. The variables were derived using the three subscales of the MBI-HSS:

emotional exhaustion, depersonalization, and personal accomplishment. The questions for each

subscale were scored according to the measure's specified criteria, and the scores for all subscale

items were summed, providing an overall subscale score. The concept of coping was represented

by 14 variables, each assessed on a subscale of Brief COPE. The 14 variables were each

assessed by the summed scores of two Brief COPE items, including self-distraction, active

coping, denial, substance use, use of emotional support, use of instrumental support, behavioral

disengagement, venting items, positive reframing, planning, humor, acceptance, religion, and

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self-blame. For the purpose of this study, only four of the 14 subscales were analyzed: active

coping, behavioral disengagement, substance abuse, and humor. Although little specific research

addressing the coping behaviors of EMS providers has been undertaken, allowing the subscales

to be analyzed, the four subscales were carefully selected for analysis in this study, based on the

theoretical literature and their potential importance to policy implications as described above.

Control variables. Aside from the primary theoretical variables used in this study, a

number of factors could have a confounding effect on the analysis and, therefore, need to be

controlled for. Controlling for these variables helps support the authentic nature of the research

findings. In line with similar studies, this study controlled for several demographic and social

variables. The data collected for the control variables as part of the original survey were

imported into SPSS and recoded into dichotomous variables, based on the literature and practical

data division, for the final analysis. The control variables are listed in Table 1.

Table 1

Control Variables

Variables	Description and metrics	Recoded description and metrics
Certification level	1-EMT	1-EMT
	2-EMT-CC	2-Paramedic
	3-Paramedic	
Race	1-White or Caucasian	1-White or Caucasian
	2-Black or African American	2-Other
	3-Hispanic or Latino	
	4-Asian or Pacific Islander	
	5-American Indian or Native Alaskan	
	6- Other	

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Variables	Description and metrics	Recoded description and metrics
EMS work status	1-Full Time	1-Full Time
	2-Part Time	2-All Other- Not Full Time
	3-2/5th	
	4-3/5th	
	5-Per deim	
	6-Other	
Agency type	1-Fire Based	1-Municipal
	2-Hospital Based	2-Private
	3-Municipal	
	4-Private (for profit)	
	5-Private (non-profit)	
	6-Volunteer	
Country	1-United States	1-United States
	2-Canada	2-All Other-Non United States
	3-England	
	4-Australia	
	5-South African	
	6-Other	
Primary service area	1-Large urban city	1-City/Urban
	2-Medium urban city	2-Rural/Suburban
	3-Small urban city	
	4-Suburban community	
	5-Rural community	
	6-Other	
Shift worked	1-Tour 1- Nights	1-Set Tours
	2-Tour 2- Days	2-No Set Tours
	3-Tours 3- Evenings	
	4-Various	
Number of years in EMS	>1- 99	N/A
Age	18-99	N/A

Variables	Description and metrics	Recoded description and metrics
Marital status	1-Never married	1-Married
	2-Long term relationship but not legally married	2-All Other Relationship Status
	3-Married	
	4-Separated	
	5-Divorced	
	6-Widowed	
Education	1-High school	1-High School
	2-Some college	2-Education Beyond High School
	3-A.A./A.S.	
	4-B.A./B.S.	
	5-Masters in progress	
	6-M.A.	
	7-J.D.	
	8-PhD/PsyD	
	9-Other	

Missing Data

Prior to analysis, all data were screened through SPSS. The data were evaluated for accuracy of data importation, missing values, and compliance with assumptions of the advanced statistical tests used in this study. Missing variables were replaced with a 999 designation. The 999 designation was then programmed to be excluded from calculations in SPSS analysis in an assortment of ways, depending on the nature of the analysis. For the specific measures and associated subscale used missing data was handled using listwise deletion. Only complete cases were subject to analysis. Not effort was made to impute or substitute for missing data. While, listwise deletion and use of only complete cases decrease the sample size, thereby decreasing the power, the number of cases that resulted far exceed the number need to appropriate statistical analysis. Furthermore this procedure resulted in unbiased parameter estimates (Little and Rubin,

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1987). The specific treatment of missing data and the actual number of included cases per measure is described in further detail in the analysis section.

Data Transformation

All data collected on the SurveyMonkey site were exported in their original form into the Statistical Package for Social Science (SPSS) version 23. For the purposes of this study, some of the original data needed to be transformed for appropriate use. Data transformation occurred in two main areas: demographic variables and measure of stress, burnout, and coping. For demographic variables, the main variable transformed was certification level. The measures of stress, coping, and burnout required data be transformed to a composite score and subscale scores.

Demographic Variables

For the purpose of analysis in this study, all demographic variables were transformed into dichotomous variables. Preliminary review of the data indicated the transformation of several variables into dichotomous variables was warranted. The transformation to dichotomous variables is indicated in Table 1.

The survey originally included three levels of providers: EMT, EMT-CC,[31] and paramedic. Certification level was the first variable to be transformed into a dichotomous variable. When data collection was complete, EMT-CC was included for analysis with the EMT group. EMT-CC is a middle certification between EMT and paramedic. It was originally created to fill a gap in EMS coverage. It was created with the understanding that EMS providers with a wider scope of skills than EMTs were needed in certain areas, especially rural areas, while acknowledging the prohibitive cost and time commitment involved in paramedic training,

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[31] A certification of EMT-I is also available in some locations, but such a certification is even closer to the EMT than EMT-CC and was determined not to warrant its own selection option for this study.

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especially in areas served by volunteers. The CC program allowed integration of some potentially lifesaving advanced medical skills with only a slight increase in classroom time and education. Over the years, many states that once certified CCs eliminated the certification level in favor of a dichotomous system of EMTs and paramedics. New York State is currently the only state that allows EMT-CCs and only in certain counties of the state. In states that have eliminated the CC certification, those holding the certification were given a limited time in which to upgrade to paramedic using bridge programs, or they were reclassified as EMTs. The future status of CCs in New York State is currently in question. The NYS Department of Health has not recently updated EMT-CC protocols although they have updated EMT and paramedic protocols several times during the same period. It has been widely speculated among EMS educators and practitioners that failure to update the CC program is reflective of a shift to eliminate the certification level in the state. The most recent NYS Vital Signs Conference of EMS providers included presentations indicating the speculation would soon become reality. Thus, it was decided that EMT-CC participants should not be examined as their own group but be classified with EMTs. After adding the EMT-CC group, the EMT group totaled 443 (32.8%) respondents, and paramedics dominated the sample, accounting for 909 (67.2%) participants.

Most of the transformations of variables into dichotomous values were completed after preliminary analysis revealed that one category dominated the other combined categories or that groupings of somewhat equal size could be obtained because of similarities in some of the subcategories offered as initial choices for survey responses. Preliminary analysis of the data revealed the most of the participants self-identified as White/Caucasian ($n = 1238$; 91.8%). Thus, race was transformed into a dichotomous variable, with White/Caucasian reflecting one group and all other races grouped in the second group. Similarly, preliminary examination of

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work status revealed most respondents reported holding full-time positions ($n = 1067$; 79.2%).

Therefore, in the transformation of work status into a dichotomous value, all non-full-time

positions reported were grouped together. Marital status, education, and country showed similar

patterns. Agency type, primary service area, and shift work were also better represented by

dichotomous variables. For example, a preliminary examination of shift work revealed no single

dominant shift being worked but a clear split among those who responded they worked set hours

and those whose hours varied, warranting transformation of the data into a dichotomous variable.

No transformations were applied to the two continuous variables of age and years in EMS.

Perceived Stress Scale

The PSS was represented by 10 individual questions on the survey. The numerical value

associated with the selection for each question was automatically coded by SurveyMonkey and

then exported into SPSS. The numerical values of all 10 individual questions were summed

using simple addition to develop a composite score in a new single variable, representing a

perceived stress score. No additional transformation of the data was needed for the PSS.

Maslach Burnout Inventory

The MBI was represented by 22 individual items on the survey. To ascribe meaning to

the responses, several steps were undertaken to transform the initial scores. The MBI provides

proprietary instructions for scoring. Based on those specific instructions, the responses were

sorted into three groups according to subscales: emotional exhaustion, depersonalization, and

personal accomplishment. Once assigned to a subscale, some of items, based on MBI

instructions, had to be reverse coded to reflect accurately the subscale construct of interest. The

recoded items were then summed with the items that did not need to be reverse coded, using

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simple addition to create an overall subscale score. The 22 questions on the survey were collapsed into three items, each representing one of the subscales.

Brief COPE

The Brief COPE was represented by 28 questions on the survey. The measure itself has 14 subscales with two items each. The 28 questions were transformed into 14 items corresponding to these subscales. The new items were created by summing, using simple addition without reverse scoring to combine the scores of the two items assigned to each scale based on the instructions provided by the Brief COPE creator. Of those 14 subscales, four— active coping, substance abuse, behavioral disengagement, and humor—were used for analysis in this study, leading to the creation of four new variables, each representing one of the subscales.

Chapter 5: Analysis and Results

Pre-Analysis Data Screening

Prescreening of the data was conducted prior to the multivariate analysis. The purpose of

the pre-screening was to evaluate data accuracy, identify incomplete data and extreme values

(outliers), and determine the data's fit to the assumptions of the statistical tests used in each

analysis. Failure to meet statistical test assumptions can directly affect the validity of the results.

An a priori power analysis (Table 2) determined the sample collected was adequate in size and

exceeded the requirement for advanced statistical analysis in this study. In addition, the power

analysis ensured a reasonable ability to detect any meaningful differences and to ensure the

proposed hypotheses were correctly evaluated based on the observations of this study.

Table 2

Power Analysis

Characteristic	Value
Alpha level	.05
Anticipated effect size	.15
Desired statistical power level	.80
Number of predictors	11
Minimum required sample size	122

Data Accuracy

Participants entered their answers to all survey items themselves. The data entered in

SurveyMonkey were exported directly from the website into SPSS. Once in SPSS, all data were

carefully examined for errors that might render analysis inaccurate. In particular, data that could

have been transferred incorrectly or corrupted as part the transfer process were watched for.

Descriptive statics, including mean, standard deviation, minimum, maximum, and range were

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run for all items to aid in this analysis. The results were examined to make sure they were plausible. No errors or miscoding was found for the entire data set.

Missing Data and Analysis

A number of surveys were missing information. Whether data were omitted intentionally or accidentally could not be determined. Missing data were addressed on a variable-by-variable basis. All missing data were initially coded 999, representing a numerical combination that had no potential to appear as part of a response set to the survey. The data were then scanned for 999 codes. When data for the two main independent variables of interests—certification level and sex—were missing, the entire survey was excluded from analysis. Four surveys were excluded for failure to provider certification level, and two were removed for missing gender information. Adjustment to the analysis was based on the nature and extent of missing data. Missing data among some of the demographic variable were considered tolerable and were simply excluded for analysis of that particular variable. For the PSS, MBI, and Brief COPE, missing data had the potential to disrupt the scoring process and the validity of the results. A missing response to any of the PSS questions invalidates the whole PSS response set because it involved summing the scores. The MBI and Brief COPE did not result in overall scores. Instead, the MBI and Brief COPE resulted in subscales scores, allowing exclusion of a single subscale for missing data while retaining the other subscales for analysis. Although 1350 surveys were deemed valid for the analysis in this study, missing data resulted in lower item-specific response rates (Table 3). When scores were compiled for total scale scores and subscales, response rates were further affected (Table 4).

Table 3

Internal Survey Response Rate by Item

Survey item	*N*	%
Demographic variable		
Certification level	1350	100.00
Gender	1350	100.00
Ethnicity	1349	99.93
Work status	1348	99.85
Agency type	1349	99.93
Country	1348	99.85
Service area	1347	99.78
Shift	1339	99.19
Years in EMS	1345	99.63
Age	1347	99.78
Children	1350	100.00
Education	1342	99.41
Perceived Stress Scale		
Item #1	1348	99.85
Item #2	1344	99.56
Item #3	1343	99.48
Item #4	1346	99.70
Item #5	1343	99.48
Item #6	1345	99.67
Item #7	1341	99.33
Item #8	1341	99.33
Item #9	1345	99.67
Item #10	1346	99.70

Maslach Burnout Inventory

Item # 1	1344	99.56
Item # 2	1340	99.26
Item # 3	1337	99.04
Item # 4	1333	98.74
Item # 5	1336	98.96
Item # 6	1344	99.56
Item # 7	1341	99.33
Item # 8	1342	99.41
Item # 9	1345	99.67
Item # 10	1342	99.41
Item # 11	1342	99.41
Item # 12	1343	99.48
Item # 13	1338	99.11
Item # 14	1339	99.19
Item # 15	1343	99.48
Item # 16	1343	99.48
Item # 17	1344	99.56
Item # 18	1339	99.19
Item # 19	1337	99.04
Item # 20	1337	99.04
Item # 21	1341	99.33
Item # 22	1345	99.63

Brief COPE

Item # 1	1344	99.56
Item # 2	1338	99.11
Item # 3	1333	98.74
Item # 4	1342	99.41
Item # 5	1339	99.19
Item # 6	1340	99.23
Item # 7	1339	99.19
Item # 8	1339	99.19
Item # 9	1339	99.19
Item # 10	1341	99.33
Item # 11	1341	99.33
Item # 12	1340	99.23
Item # 13	1338	99.11
Item # 14	1337	99.04
Item # 15	1342	99.41
Item # 16	1340	99.23
Item # 17	1339	99.19
Item # 18	1337	99.04
Item # 19	1339	99.19
Item # 20	1341	99.33
Item # 21	1335	98.89
Item # 22	1342	99.41
Item # 23	1340	99.23
Item # 24	1336	98.96
Item # 25	1340	99.23
Item # 26	1335	98.89
Item # 27	1337	99.04
Item # 28	1341	99.33

Table 4

Response Rates for Totaled Scales and Subscales, Missing Data Considered

Instrument	Scale/subscale	N	%
Perceived Stress Scale			
	Perceived Stress Scale	1285	94.96
Maslach Burnout Inventory			
	MBI-Emotional Exhaustion	1266	93.78
	MBI- Depersonalization	1292	95.70
	MBI-Personal Accomplishment	1272	94.22
Brief COPE			
	Brief COPE-Behavioral Disengagement	1344	99.56
	Brief COPE- Substance Use	1344	99.56
	Brief COPE- Active Coping	1333	98.74
	Brief COPE- Humor	1335	98.89

Even adjusting for all missing data, all response rates for individual items and transformed items remained greater than 90%, indicating the missing data had minimal effect on the overall accuracy of the data.

Response Rate

An overall response rate could not be computed because of the nature of data collection and the unknown thousands of potential participants who viewed the various Facebook posts. Response rates for EMS participant surveys tend to be low, resulting in small samples. Studies have indicated response rates as low as 31% (Shakespeare-Finch, Gow, & Smith, 2005), but samples also tended to be small (under 1000 participants). Responses were based on a single survey with no follow-up. For this present study, 1,356 individual surveys were entered on SurveyMonkey. Of that number, four sets of survey responses were discarded prior to analysis

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because respondents failed to indicate their EMS provider level, which was considered crucial because failure to indicate a provider level indicated the possibility that the respondent did not meet the basic criteria as an EMS provider for inclusion in this study. Two additional sets of survey responses were excluded because of the respondents did not indicate their sex. Failure to indicate sex, the main independent variable of this study, warranted their exclusion because no analysis could be undertaken in the context of this study. Ultimately, 1,350 surveys were included in the analysis.[32]

Obtaining data, particularly demographic data, on the larger EMS population to compare with the results of this sample was not possible. Most participants completed the survey. Response rates within the survey varied by question, with responses to individual items ranging from 98.74% to 100% (Table 3). The response rate indicates the most of those who began the survey completed it, very few data were missing, giving a comprehensive picture of each respondent for the areas of interest for this study.

Sample Description

Most the participants for this study were paramedics (67.2%), were men (58.7%), worked full time (79.0%), and had an education beyond high school (94%); 62.3% of respondents worked for private ambulance agencies (as opposed to municipal agencies), and 57.4% indicated they did not work any set hours, indicating their working hours and shifts varied a great deal. Approximately one quarter (23.4%) indicated they were married, and approximately half (56.5%) indicated they worked in city areas. The descriptive statistics for the various demographic and control variables appear in Tables 5 and 6.

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[32] Of the 1,356 individuals who completed the survey, only 503 (37%) linked to the raffle entry page, and only 502 respondents entered their personal information to be included in the raffle.

Table 5

Descriptive Statistics of Transformed Control Variables: Dichotomous Variables

Variable	Description and metrics	*N*	%
Certification level	1-EMT	443	32.8
	2-Paramedic	907	67.2
Race	1-White or Caucasian	1238	91.7
	2-Other	111	8.2
EMS work status	1-Full time	1067	79.2
	2-All other–Not full time	281	20.8
Agency type	1-Municipal	509	37.7
	2-Private	840	62.3
Country	1-United States	1179	87.5
	2-All other–Not United States	169	12.5
Primary service area	1-City	761	56.5
	2-Non-city	586	43.5
Shift worked	1-Set hours	571	42.6
	2-No set hours	768	57.4
Marital status	1-Married	316	23.5
	2-All other relationship status	1026	76.5
Education	1-High school	81	6.0
	2-Education beyond high school	1261	93.4

Table 6

Control Variables Measured as Continuous Variables

Variable	*N*	*M*	*SD*
Age	1347	20.02	10.19
Years in EMS	1345	12.51	6.67

Perceived Stress Scale Sample Descriptives

The PSS was scored for 1319 respondents, with a mean score of 19.05 (SD = 7.75) out of a potential score of 40. Previous normative data reports indicated a mean score for the general population of 13.02 (Cohen et al., 1983). Higher scores represent higher levels of perceived stress, indicating EMS providers, in general, have higher PSS scores than the general population. When sex was taken into consideration, male EMS providers in the sample (n = 775) had a mean score of 18.39 (SD = 7.84) and female EMS providers (n = 554) had a mean PSS score of 19.98 (SD = 7.54). Standard population norms for this measure have indicated, for men, a mean score should be about 12.1 and, for women, 13.7 (Cohen et al., 1983). These results indicate, when sex is considered, male and female EMS providers have higher than average scores on the PSS than the general population, indicating female EMS providers perceived larger amounts of stress than members of the general population and their male counter parts, providing preliminary support for the primary hypothesis (H[1]). Whether the preliminary differences are statistically significant is discussed in following sections.

Maslach Burnout Inventory Sample Descriptives

The responses on the MBI subscale of emotional exhaustion (EE) were calculated for 1301 respondents. The mean score for EE was 23.79 (SD = 12.33). The formal scoring placed the average response score in the moderate level of emotion exhaustion. Female respondent in the sample (n = 537), on average, showed higher levels of emotional exhaustion (M = 24.94; SD = 12.04) than did male EMS providers (n = 764; M = 22.98; SD = 12.48), providing preliminary support for the primary hypothesis (H[2]).

The depersonalization subscale scores were calculated for 1325 respondents with a mean score of 12.97 (SD = 6.83). Based on standard scoring and interpretation of this scale, this mean

score placed the sample between moderate (7–12) and high (13 and over) levels of depersonalization. Female EMS providers in the sample ($n = 548$) had lower depersonalization subscale scores ($M = 12.32$; $SD = 13.43$) than male providers ($n = 777$; $M = 13.43$, $SD = 7.03$). The subscale scores for male providers, on average, were in the high range while scores for females were closer to the moderate range, a finding which was counter to the primary hypothesis (H^3).

The third component of the MBI, the personal accomplishment scale, was computed for 1305 respondents, with a mean score of 31.56 ($SD = 8.43$). According to standardized scoring and interpretation, the sample scores, on average, were in the moderate range of personal accomplishment, with the personal accomplishment scale being interpreted in the opposite direction from the other two scales, that is, lower scores corresponding to higher burnout. Female providers in the sample ($n = 537$), on average, showed higher levels of personal accomplishment ($M = 32.11$; $SD = 8.07$) while males providers ($n = 768$) had a lower mean score of 31.18 ($SD = 8.67$), indicating higher burnout for men, a finding that was counter to the primary hypothesis (H4). Whether the preliminary differences are statistically significant is examined in following sections.

Brief COPE Sample Descriptives

The Brief COPE was not designed as a clinical tool, so no formal cut-off scores are indicated, but higher scores indicate more use of the specific type of coping when the subscales are examined. For the humor subscale, the average score was 6.26 ($n = 1335$; $SD = 1.23$). Men in the sample ($n = 786$) had an average score on the humor subscale of 6.42 ($SD = 1.60$) while women ($n = 557$) had an average score of 5.98 ($SD = 1.68$), indicating men reported higher use of humor coping, consistent with the primary hypothesis (H8). The active coping subscale has a

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mean score of 5.77 ($n = 1333$; $SD = 1.548$). Men ($n = 784$) in the sample had a mean coping

score of 5.72 ($SD = 1.55$) while women ($n = 557$) had a mean score of 5.85 ($SD = 1.55$),

indicating female providers in the sample potentially engaged in active coping more than their

male counterparts, consistent with the primary hypothesis (H^5). The overall sample mean score

for behavior disengagement was 3.476 ($n = 1344$; $SD = 1.66$). Male EMS providers in the

sample had a mean score of 3.44 ($n = 787$; $SD = 1.63$) while female providers had a mean score

of 3.53 ($n = 557$; $SD = 1.70$), indicating female EMS providers may use behavioral

disengagement more than male providers, consistent with the primary hypothesis (H^7). The

substance use subscale average score was 3.319 ($n = 1344$; $SD = 1.85$). Men in the sample

showed more substance use for coping with a mean of 3.42 ($n = 787$; $SD = 1.91$) than did

women, who had a mean score of 3.13 ($n = 557$; $SD = 1.76$), consistent with the primary

hypothesis (H^7). Whether the preliminary differences are statistically significant are examined in

a later section.

T-Tests–Males Compared to Females

To test directly the primary hypotheses described earlier, several *t* tests were run to

examine whether preliminary sex-based differences existed among dependent variables of

interest. Each *t* test was run independently of the others to address each of the hypotheses. The

hypotheses indicate differences in the scores of perceived stress (H^1), burnout (H^2, H^3, & H^4),

and coping (H^5, H^6, H^7 & H^8) will appear according to respondent sex. Preliminary examination

of the data using descriptive statistics showed differences existed in the sample between male

and female providers for the variables of interest, but did not determine whether the differences

were statistically significant.

Using Levene's test for equality of variances, equal variance was assumed for all, with the exception of the MBI Depersonalization Subscale and the Brief COPE Substance Abuse Subscale. The results of the analysis (Tables 7 and 8) show, for two of the coping subscales—behavioral disengagement and active coping—, no statistically significant differences were found between male and female EMS providers. Thus, the null hypothesis (H^7 and H^5) for those two variables was supported. For all the other scales examined, statistically significant differences between male and female providers' responses were found (Tables 7 and 8), and the null hypothesis was rejected (H^1, H^2, H^3, H^4, H^6, and H^8). The directionality of depersonalization and personal accomplishment was counter to that which was originally hypothesized). For the most part, this finding is consistent with the literature on sex-based differences in stress, coping, and burnout. The statistically significant differences in responses to the PSS, MBI, humor Subscale, and Substance Abuse Subscale found between male and female EMS providers in this sample indicated the need for further statistical analysis in the form of multiple regressions to further understand the nature of these differences. The initial examination of the interrelationships among these control variables revealed some of them had statistically significant correlations. All the significant correlations were low level at .26 ($p < .00$), reflecting the highest correlation well under the acceptable level of .7, at which collinearity becomes an issue (Meyers, Gamst, & Guarino, 2012).

Table 7

Descriptives for Independent Sample t *Test for Stress, Burnout, and Coping by Sex*

Descriptive statistics		N	M	SD
Perceived stress	Male	775	18.39	7.84
	Female	544	19.98	7.54
MBI-EE	Male	764	22.98	12.48
	Female	537	24.94	12.04
MBI-DP	Male	777	13.43	7.03
	Female	548	12.32	6.48
MBI-PA	Male	768	31.18	8.66
	Female	537	32.11	8.07
Brief COPE-Active Coping	Male	784	5.72	1.55
	Female	549	5.85	1.55
Brief COPE- Humor	Male	781	6.44	1.57
	Female	554	6.00	1.66
Brief COPE- Substance Use	Male	787	3.42	1.91
	Female	557	3.18	1.76
Brief COPE- Behavioral Disengagement	Male	787	3.44	1.63
	Female	575	3.53	1.70

Table 8

Independent Sample t *test for Stress, Burnout, and Coping by Sex*

Independent samples		T	df	p
Perceived stress	Equal variances	-3.69	1317.00	.00
	Equal variances not assumed	-3.71	1196.96	.00
MBI-EE	Equal variances	-2.83	1299.00	.01
	Equal variances not assumed	-2.85	1179.13	.00
MBI-DP	Equal variances	2.93	1323.00	.00
	Equal variances not assumed	2.98	1233.09	.00
MBI-PA	Equal variances	-1.97	1303.00	.05
	Equal variances not assumed	-1.99	1202.39	.05
Brief Cope-Active Coping	Equal variances	-1.55	1331.00	.12
	Equal variances not assumed	-1.55	178.14	.12
Brief COPE- Humor	Equal variances	4.91	1333.00	.00
	Equal variances not assumed	4.86	1150.72	.00
Brief COPE- Substance Use	Equal variances	2.30	1342.00	.02
	Equal variances not assumed	2.33	1252.72	.02
Brief COPE- Behavioral Disengagement	Equal variances	-.93	1342.00	.35
	Equal variances not assumed	-.92	1164.05	.36

Bivariate Correlation

A Pearson's correlation analysis was completed to examine the initial relationships among the variables of interest. Prior to examining the dependent variable, a correlation was undertaken to examine the interrelationships among the control variables, revealing some of the variables had statistically significant correlations. All the significant correlations were low level correlations at .262 ($p < .000$), reflecting the highest correlation was well under the acceptable level of .7 at which collinearity becomes an issue (Meyers, Gamst, & Guarino, 2012).

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Correlation matrices were then developed for the dependent variables of interest, the independent variable, and the control variables. Because this study has three area of interest—perceived stress, burnout, and coping—, several correlation matrices were developed. Tables 9 through 16 show the matrices for the dependent variables of perceived stress, burnout, and coping. Overall, most of the variables did not show any significant correlation with dependent variables of interest. Respondent sex, the primary independent variable of interest, was found to be significantly correlated in six of the eight matrices. Results for the Active Coping Subscale and the Behavioral Disengagement Subscale showed no significant correlation with sex. This finding is consistent with the *t* test results of non-significance for the same two subscales when examined in the context of sex. All the correlations for sex and the dependent variables that were found to be significant were weak correlations ranging from -.133 to .101. It is unclear why more variables did not show statistically significant correlation, especially in light of the general literature indicating each of the control variables should affect stress, burnout, and coping. The lack of moderate to strong statistically significant correlations (those greater than .70) indicates no issues of collinearity exist.

Table 9

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Perceived Stress

Variable	N	Y$_1$	X$_1$	X$_2$	X$_3$	X$_4$	X$_5$	X$_6$	X$_7$	X$_8$	X$_9$	X$_{10}$	X$_{11}$	X$_{12}$
PSS (Y$_1$)	1319	1.000												
Sex (X$_1$)	1319	.101**	1.000											
Race (X$_2$)	1318	-.024	-.021	1.000										
Work status (X$_3$)	1317	.003	.107**	-.040	1.000									
Country (X$_4$)	1317	-.014	.037	-.065*		1.000								
Marital status (X$_5$)	1311	-.014	-.043	-.021	-.005	.024	1.000							
Education (X$_6$)	1312	-.040	.072**	.019	.023	-.020	.023	1.000						
Agency type (X$_7$)	1318	.014	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X$_8$)	1316	.005	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X$_9$)	1308	.034	-.002	-.047	.152**	.198**	.004	.0377	-.144**	.182**	1.000			
Years worked (X$_{10}$)	1314	-.015	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X$_{11}$)	1316	-.066*	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X$_{12}$)	1319	-.048	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*p< 0.05 (2-tailed). **p< 0.01 (2-tailed).

Table 10

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Burnout-EE Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
MBI-EE (Y_1)	1301	1.000												
Sex (X_1)	1301	.078**	1.000											
Race (X_2)	1300	-.030	-.021	1.000										
Work status (X_3)	1299	-.113**	.107**	-.040	1.000									
Country (X_4)	1299	.020	.037	-.065*	-.007	1.000								
Marital status (X_5)	1293	-.022	-.043	-.021	-.005	.024	1.00							
Education (X_6)	1293	.010	.072**	.019	.023	-.020	.023	1.00						
Agency type (X_7)	1300	.016	.115**	.016	.104**	-.158**	-.100**	-.016	1.00					
Service area (X_8)	1298	-.102**	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.00				
Shift (X_9)	1290	.001	-.002	-.047	.152**	.198**	.004	.037	-.144*	.182**	1.00			
Years worked (X_{10})	1297	.013	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.00		
Age (X_{11})	1298	-.067	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.00	
Certification (X_{12})	1301	.430	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.00

* $p< 0.05$ (2-tailed). ** $p< 0.01$ (2-tailed).

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Table 11
Bivariate Correlations Among Dependent, Predictor, and Control Variables for Burnout-DP Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
MBI-DP (Y_1)	1325	1.000												
Sex (X_1)	1325	-.080**	1.000											
Race (X_2)	1325	-.045	-.021	1.000										
Work status (X_3)	1323	-.101**	.107**	-.040	1.000									
Country (X_4)	1323	-.031	.037	-.065*	-.007	1.000								
Marital status (X_5)	1317	-.105**	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1317	-.013	.072**	.019	.023	-.020	.023	1.000						
Agency type (X_7)	1324	-.015	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X_8)	1323	-.149**	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1314	-.015	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years worked (X_{10})	1320	-.099**	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1322	-.225**	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1322	.048	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*$p< 0.05$ (2-tailed). **$p< 0.01$ level (2-tailed).

Table 12

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Burnout-PA Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
MBI-PA (Y_1)	1305	1.000												
Sex (X_1)	1305	.054*	1.000											
Race (X_2)	1305	.042	-.021	1.000										
Work status (X_3)	1303	.034	.107**	-.040	1.000									
Country (X_4)	1303	.056*	.037	-.065*	-.007	1.000								
Marital status (X_5)	1297	-.020	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1298	.005	.072**	.019	.023	-.020	.023	1.000						
Agency type (X_7)	1304	.03	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X_8)	1302	.041	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1294	.014	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years worked (X_{10})	1301	.009	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1303	.069*	-.028	-.035	.107**	-.008	.410***	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1305	.003	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*$p < 0.05$ (2-tailed). **$p < 0.01$ (2-tailed).

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Table 13

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Brief COPE-Active Coping

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
Brief COPE-AC (Y_1)	1333	1.000												
Sex (X_1)	1333	.042	1.000											
Race (X_2)	1332	.082**	-.021	1.000										
Work status (X_3)	1331	.033	.107**	-.040	1.000									
Country (X_4)	1331	-.009	.037	-.065*	-.007	1.000								
Marital status (X_5)	1325	-.004	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1325	.088**	.072**	.019	.023	-.020	.023	1.000						
Agency type (X_7)	1332	.027	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X_8)	1330	.003	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1332	-.050	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years worked (X10)	1328	-.059*	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1331	.004	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1333	.015	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*$p < 0.05$ (2-tailed). **$p < 0.01$ (2-tailed).

Table 14

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Brief COPE-SA Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
Brief COPE-SA (Y_1)	1344	1.000												
Sex (X_1)	1344	-.063*	1.000											
Race (X_2)	1343	-.034	-.021	1.000										
Work status (X_3)	1342	-.018	.107**	-.040	1.000									
Country (X_4)	1342	.067*	.037	-.065*	-.007	1.000								
Marital status (X_5)	1336	.012	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1336	-.013	.072**	.019	.023	-.020	.023	1.000						
Agency type (X_7)	1343	-.069*	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X_8)	1341	-.079**	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1333	.063*	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years worked (X_{10})	1339	-.031	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1342	-.088**	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1344	.033	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*p< 0.05 (2-tailed). **p < 0.01 (2-tailed).

Table 15

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Brief COPE-BD Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
Brief COPE-BD (Y_1)	1344	1.000												
Sex (X_1)	1344	.025	1.000											
Race (X_2)	1343	.004	-.021	1.000										
Work Status (X_3)	1342	.002	.107**	-.040	1.000									
Country (X_4)	1342	-.025	.037	-.065*	-.007	1.000								
Marital Status (X_5)	1336	-.024	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1336	-.048	.072**	.019	.023	-.020	.023	1.000						
Agency Type (X_7)	1343	-.006	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service Area (X_8)	1341	-.010	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1333	.047	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years Worked (X_{10})	1339	-.002	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1342	-.045	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1344	-.056*	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*$p < 0.05$ (2-tailed). **$p < 0.01$ (2-tailed).

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Table 16

Bivariate Correlations Among Dependent, Predictor, and Control Variables for Brief COPE-Humor Subscale

Variable	N	Y_1	X_1	X_2	X_3	X_4	X_5	X_6	X_7	X_8	X_9	X_{10}	X_{11}	X_{12}
Brief COPE-Humor (Y_1)	1335	1.000												
Sex (X_1)	1335	-.133**	1.000											
Race (X_2)	1334	-.014	-.021	1.000										
Work status (X_3)	1333	-.130**	.107**	-.040	1.000									
Country (X_4)	1333	-.027	.037	-.065*	-.007	1.000								
Marital status (X_5)	1327	-.024	-.043	-.021	-.005	.024	1.000							
Education (X_6)	1327	.026	.072**	.019	.023	-.020	.023	1.000						
Agency type (X_7)	1334	.012	.115**	.016	.104**	-.158**	-.100**	-.016	1.000					
Service area (X_8)	1332	-.059*	.026	-.056*	.142**	-.075**	.033	.059*	.004	1.000				
Shift (X_9)	1324	-.074**	-.002	-.047	.152**	.198**	.004	.037	-.144**	.182**	1.000			
Years worked (X_{10})	1330	-.062*	-.112**	-.032	.014	-.037	.340**	.022	-.065*	.076**	.003	1.000		
Age (X_{11})	1333	-.173**	-.028	-.035	.107**	-.008	.410**	.018	-.041	.065*	-.038	.743**	1.000	
Certification (X_{12})	1335	.070*	-.070**	-.049	-.210**	.031	.135**	.116**	-.108**	-.025	-.003	.299**	.154**	1.000

*$p < 0.05$ (2-tailed). **$p < 0.01$ (2-tailed).

Multivariate Analysis

The *t* test and correlation matrices indicate, overall, relationships between sex and stress, burnout, and coping, but it does not explain this relationship, nor does it truly account for the additional demographic variables the literature has indicated are important considerations in understanding stress, burnout, and coping. Multiple regressions were used in this study to understand the relationships between sex and stress, sex and burnout, and sex and coping. They were also used to address the secondary research questions described above.

Respondent sex and each control variable were subjected to a multiple regression analysis to reveal their unique contribution in predicting stress, burnout, and coping among the sample EMS population. Prior to analysis, the presence of multicollinearity was tested for using tolerance and variance inflation factor (VIF) scores. In general, tolerance scores of .01 or lower indicated the presence of multicollinearity (Meyers, Gamst, & Guarino, 2012) while VIF scores of greater than 10 indicated multicollinearity. For Model 1, which focuses on the Perceived Stress Scale, tolerance scores ranged from .40 to .99, well exceeding the cutoffs for multicollinearity, and VIF scores ranged from 1.02 to 2.52. These results indicate, for Model 1, multicollinearity is not an issue. Model 2, which focuses on the MBI, showed similar tolerance of VIF for the EE subscale (tolerance ranging from .40 to .94 and VIF ranging from 1.02 to 2.53), the DP subscale (tolerance ranging from .40 to 0.99 and VIF ranging from 1.02 to 2.50), and the PA subscale (tolerance ranged from.40 to .99 and VIF ranging from 1.02 to 2.50), all indicating multicollinearity is not a concern with this data set.

Reviews of tolerance and VIF scores for the four components of Model 3, which focuses on the selected subscales of the Brief COPE, showed no issues of multicollinearity. For active coping, tolerance scores ranged from .40 to .98, and VIF scores ranged from 1.02 to 2.50. The

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humor subscale had tolerance scores of .40 to .98, and VIF scores from 1.02 to 2.50. The substance abuse subscale had VIF scores ranging from 1.02 to 2.51, and tolerance scores from .40 to .98. The final coping subscale, behavioral disengagement, did not develop into a significant model for advanced analysis. Therefore, multicollinearity was not a concern for the third model.

Summaries of the multiple regressions appear in Tables 17, 18, and 19. Although Model 1 was significant ($F(12,1264) = 2.69$; $p < .001$) with sex, years on the job, and age contributing significantly to the model, only 1.6% of the overall variance in the dependent variable of perceived stress as measured by the PSS was explained. So while sex was one of the significant predictors of stress (AH[1]) it only accounted for a small amount of the variance found (BH[1]). The EE subscale of the MBI for Model 2 was statistically significant with sex, work status, service area, years of service, and age contributing to the model. Despite the statistical significance, only 3.5% of the variance in EE as measured by the MBI was explained by all the significant contributors. Therefore, while sex was one of the significant predictors of EE (AH[2]), the model only accounted for a small amount of the variance found (BH[2]). The statistically significant model for the depersonalization subscale of the MBI included sex, race, service area, age, and years on the job, providing preliminary support for the secondary hypothesis (AH[3]) and accounted for 8.4% of the variance in DP measured by the MBI, providing preliminary support for the secondary hypothesis (BH[3]). The PA scale had a significant regression model that included county and age, explaining 1.6% of the variance in the score, but respondent sex was not a significant contributor despite it hypothesized contribution (AH[4] and BH[4]).

The four coping subscales from the Brief COPE used in this study were analyzed using a multiple regression. The behavioral disengagement subscale resulted in a model that was not

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statistically significant, resulting in the failure to reject the null hypothesis (AH^7 and BH^7). The other three models were statistically significant. The model for active coping, which accounted for 1.8% of the variance in the measure, did not include sex as a significant contributor to the model, causing the failure to reject the null hypothesis (AH^5 and BH^5). Both of these findings are not surprising, given the earlier *t* test showing no statistically significant difference between men's and women's responses on these coping subscales. The model for humor ($F(12, 1280) = 8.85$; $p < .00$) showed significance with the model, which included sex accounting for 6.8% of the variance. The model examining the substance abuse scale also indicated statistical significance ($F(12, 1289) = 3.79$; $p < .00$), with sex contributing to the model; however, the overall model accounted for only 2.5% of the variance.

Table 17

Multiple Regression Analysis for Model 1

Variable	Perceived stress		
	B	*SE*	*B*
Independent variable			
Sex	1.76	.45	.11***
Control variables			
Race	-.41	.81	-.01
Work status	-.94	.56	-.02
Country	-.70	.68	-.03
Marital status	.35	.56	.02
Education	-1.57	.91	-.05
Agency type	-.04	.46	-.00
Service area	-.15	.45	-.01
Shift	.62	.46	.04
Years on the job	.13	.05	.11**
Age	-.11	.03	-.14**
Certification	-.87	.50	-.05

Note. $R = .16$; Adj. $R^2 = .02$; $F(12, 1264) = 2.69$; $p < .001$.
*$p < .05$; **$p < .01$; ***$p < .001$.

Table 18
Multiple Regression Analysis for Model 2

Variable	Emotional exhaustion			Depersonalization			Personal accomplishment		
	B	*SE*	*B*	B	*SE*	*B*	B	*SE*	*B*
Independent variable									
Sex	2.46	.71	.10**	-.95	.38	-.07*	.69	.49	.04
Control variables									
Race	-1.31	1.27	-.03	-1.48	.68	-.06*	1.19	.88	.04
Work status	-3.47	.90	-.11***	-.73	.48	-.04	.16	.62	.01
Country	-.06	1.07	-.00	-1.08	.58	-.05	1.84	.75	.07**
Marital status	.07	.89	.00	-.35	.47	-.02	-1.24	.62	-.06
Education	.54	1.49	.01	-.15	.78	-.01	9.90	1.00	.00
Agency type	.68	.73	.0	-.0	.39	-.02	.76	.51	.04
Service area	-2.50	.72	-.10***	-1.88	.38	-.14***	.86	.49	.05
Shift	.87	.74	.04	.09	.39	.01	.05	.51	.00
Years on the job	.25	.08	.14**	.12	.04	.12**	-.12	.06	-.09
Age	-.17	.05	-.14**	-.20	.03	-.30***	.14	.04	.16
Certification	.15	.80	.01	.50	.42	.03	.51	.55	.03

Note. Emotional exhaustion: $R = .21$; Adj. $R^2 = .04$; $F(12, 1264) = 4.79$; $p < .00$. Depersonalization: $R = .30$; Adj. $R^2 = .08$; $F(12, 1271) = 10.84$; $p < .00$.
Personal accomplishment: $R = .16$; Adj. $R^2 = .02$; $F(12, 1253) = 2.67$; $p < .002$.
*$p < .05$; **$p < .01$; ***$p < .001$.

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Table 19

Multiple Regression Analysis for Model 3

Variable	Active coping			Humor			Substance abuse		
	B	*SE*	*B*	B	*SE*	*B*	B	*SE*	*B*
Independent variable									
Sex	.05	.09	.02	-.42	.09	-.13***	-.21	.11	-.06*
Control variables									
Race	.36	.16	.06*	-.23	.16	-.04	-.22	.20	-.03
Work status	.15	.11	.04	-.32	.11	-.08	.07	.13	.02
Country	.01	.14	.00	-.05	.14	-.01	.24	.16	.04
Marital status	.04	.11	.01	.17	.11	.04	.17	.13	.04
Education	.56	.18	.09**	.27	.19	.04	-.05	.22	-.00
Agency type	.06	.09	.02	.12	.09	.03	-.17	.11	-.04
Service area	.06	.09	.01	-.08	.09	-.02	-.32	.11	-.09**
Shift	-.16	.09	-.05	-.22	.09	-.07*	.20	.11	.05
Years on the job	-.04	.01	-.15**	.02	.01	.08	.02	.01	.06
Age	.01	.01	.10*	.04	.01	-.25***	-.03	.01	-.16***
Certification	.17	.10	.05	.19	.10	.05	.11	.12	.03

Note. Active coping: $R = .17$; Adj. $R^2 = .02$; $F(12, 1278) = 2.98$; $p < .00$. Humor: $R = .28$; Adj. $R^2 = .07$; $F(12, 1280) = 8.85$; $p < .00$. Substance abuse: $R = .19$;
Adj. $R^2 = .03$; $F(12, 1289) = 3.9$; $p < .00$.
*$p < .05$; **$p < .01$; ***$p < .001$.

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Chapter 6: Discussion and Conclusion

Summary of the Findings

In general, the study revealed EMS providers' sex plays a role in perceived stress and

burnout, as well as in some aspects of coping. These finding are not as robust as would be

preferred, but they do provide some support for the role of sex as a contributor. If the concept of

sex was expanded to included gender and other factors associated with doing gender, these

findings may be more robust. The initial strong indication of sex-based differences in the

responses did not hold, but the later analysis indicated sex alone did not account for much of the

variance. None of the regression models accounted for more than 10% of the variance

explained. The disconnect between the initial promising results and the somewhat disappointing

final results indicates other factors may be directly associated with providers' sex to help account

for the differences. Gender and specific workplace policies affecting gender may account for a

greater part of the variance explained. The results of this study do provide justification for the

expanding the examination of the differences between men and women in terms of stress,

burnout, and coping in the field of EMS. Thus, this present study not only contributes to but

expands upon the existing literature.

Strengths of the Present Study

A major strength of this study is its sample size, which exceeded the sample sizes used in

past studies of EMS providers. Although the sample was a convenience sample, the size, which

far exceeded that required by the power analysis helped to lend validity to the results.

Furthermore, EMS study samples have traditionally been garnered from specifically limited

locations, often because EMS providers, as a closed group, tend not to be open to outside

researchers. Those doing EMS research are usually limited to people they have access to via

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employment or special arrangement. The variety of providers these researchers have access to is often limited. The use of Facebook for initial contact and recruitment enabled contact with a wide variety of potential providers working for many organizations worldwide while providing a more representative sample of EMS as a whole profession.

The online methodology for data collection for this study was an additional strength. Not only did the online method reduce coding and data input errors, but also it used a medium familiar to most EMS providers. EMS providers have theoretically become increasingly more adept at completing online paperwork as part of the HIPPA compliance rule. The survey of this study was delivered in an online template that was familiar and easy for the EMS providers to use. Furthermore, the online survey access allowed users to complete the survey at their convenience from wherever they felt comfortable and removed the complications and effort associated with completing and returning a pencil-and-paper surveys.

Limitations of the Present Study

Most of the limitations of this study lie in the method for obtaining the sample population and the inability of the study, because of concern of participants, to address certain potentially influential issues with respect to sex/gender and occupational issues. Among the primary limitations was that, despite the large sample, it was still a non-probability convenience sample. It included only those EMS providers who had online access and were members of certain professional groups on Facebook. An untold number of EMS providers may not engage in using the Internet or social media sites like Facebook on a regular basis. Furthermore, even those who do use Facebook may not use it for professional affiliations.

In addition, while the online nature of this study made data collection easy and convenient, it did not allow for verification that respondents were EMS providers. Although all

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self-reported surveys have issues with honesty of response and bias, the anonymity of the online setting may exacerbate that issue. Despite the potential issues with self-reported measures, they are generally considered practical reflections of actual behavior.

While this study was focused on provider sex as the primary independent variable of interest, biological sex may not be enough to understand the issues of stress, burnout, and coping in EMS providers. This study did not include any assessments of gender, nor did it include any questions about sexual harassment or sex-based discrimination, which are thought to be prominent in male-dominated work environments, such as EMS. In failing to include these concepts, the greater effect of sex-based differences may have been lost.

This study was focused almost exclusively on personal factors for each respondent. Only a few items addressed issues of the overall work environment, and no specific questions addressed organizational policy and procedure. A greater focus on these areas may have yielded better results concerning sex-based differences because aspects of the literature indicate organizational factors—specifically management—play a greater role in work stress and burnout than individual factors.

In this study, perceived stress was measured using a general scale, not an EMS-specific scale because no such specific scale existed. Thus, it may be somewhat complicated to determine what aspects of the perceived stress are specific to EMS providers and what aspects are associated with daily life.

Policy Implications

The fundamental reason for examining stress, burnout, and coping among any population is to improve individual functions. Examining these issues among occupational or work populations is not simply for the benefit of individuals but for the welfare of the organization and

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overall work environment. The first rule taught to all EMS providers on the first day of training is that they are the most important person on any scene in all circumstances. The understanding is, if the providers themselves are hurt or injured because they fail to make themselves a priority, they cannot help those in need but end up diverting crucial resources away from others in need. EMS is generally good at conveying message with respect to physical hazard and danger, but it less adept at conveying this message concerning the less visible and perhaps less obvious threats associated with stress and burnout and the failure to cope effectively.

The notion of "Healer, heal thyself" is not a failure for the individual, but that failure will directly affect coworkers, organizational standards, and delivery of effective patient care. The EMS community of providers and the public they serve deserve to have providers with good physical and mental health. A holist approach to the well-being of providers needs to be undertaken not only by management but also by the individual provider. Specific policies and procedures addressing the specific challenges faced by EMS providers need to be put in place in all EMS agencies. These policies and procedures should not only encourage good mental health among these providers with respect to stress that can lead to burnout but also be preventative and proactive in providing the tools for effective coping, whether through training or professional help.

Although the job of EMS providers is inherently stressful, employers and providers should have the tools and ability to limit the stress they can control and maximize effective and productive coping skills. If this general approach is implemented at the individual, managerial, and organizational level, it could reduce burnout and increase a sense of personal accomplishment and satisfaction, thereby creating a better work environment, improving patient

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care, and reducing employee turnover rates. Employees' experiencing less stress, fewer burnout symptoms, and healthy effective coping could have the following effects:

- Improved morale,

- Increased organizational commitment,

- Lower turnover rates,

- Better coworker relationships,

- Increased efficiency,

- Better patient care.

The first step in this process is this study and others like it, which can build the foundation upon which these policies can be developed and implemented. Doing so may necessitate an active move away from the strongly male culture and ethos that still influence EMS nationwide.

Direction of Future Research

In general, this study has highlighted the need to understand stress, burnout, and coping in all EMS providers. The deficiencies in the literature in this area are troubling. This study has indicated that, overall, EMS providers experience stress and burnout at higher levels than would be expected in non-providers, further indicating that coping mechanisms may not be as evident as some of studies have indicated. EMS providers are not the same as police officers and firefighters or any other emergency first responders. The roles of EMS providers are different from those other groups. Their unique role in emergency situations and specialized training set them apart, so they should be studied as a unique group with respect to stress, coping, and burnout.

Future research should be focused not only on furthering understanding of the differences between male and female EMS providers with regards to stress, burnout, and coping but also on

the nature of sex and gender in the EMS culture overall because the general issues of sex and gender that permeate the culture inevitably appear in all aspects of the job. Despite women entering EMS in increasing numbers, this study has indicated that gains in equality are not keeping pace with this increase in female providers. Women in this sample were less likely to occupy the better, more prestigious, and better paying jobs of EMS, with fewer women working in the roles of paramedics, working in full-time positions, and working for municipal agencies, despite the fact that women tended to achieve higher levels of education. Future research could address the role EMS culture (which has yet to be clearly defined) plays in the gender experiences of EMS providers. Developing such an understanding could help in expanding on the preliminary findings of this study.

Once a better understanding of the differences in stress, burnout, and coping in male and female EMS providers is developed, departmental policies, interventions, and programs can be successfully developed, tailored to each group. Doing so will not only help individual providers who have been directly affected by these factors but also help EMS organizations with effective and efficient functioning, as well as employee retention.

Conclusion

Despite the limitations of this study, it was the first to examine issues of stress, burnout, and coping in the context of sex of EMS providers. This study expands the knowledge in the areas of stress, burnout, and coping with respect to the specific subpopulation of EMS providers. While this study does not delineate the definitive or comprehensive nature of the role of provider sex in stress, burnout, and coping, it does add to the knowledge base and provides tentative support for the theoretical approaches to sex in traditionally male-dominated occupations. While an all-inclusive approach—including both organization and individual aspects—of stress,

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coping, and burnout, this study provided preliminary support for aspects of the individual contribution to the manifestation of the concepts of interest.

The most important implication of this study is that sex needs to be included in any discussion of stress, burnout, and coping in EMS providers. Barring a complete overhaul of the male-dominated nature of EMS culture and work environments, sex and gender in their broadest sense will continue to be influential. Sex and gender need to be considered in all aspects of policy making and interventions that directly affect all EMS providers.

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The purpose of this survey is to gather information on the stress experienced by EMTs and paramedics and to use that knowledge to effect positive change for EMS providers.
Your participation in this study is voluntary. Please take your time to read and answer all the questions listed below.

Please be sure and answer all of the questions.

After reading each question, please select the answer that best represents your response.

The survey should take about 20 minutes to complete. Your responses are totally anonymous.

At the end of the survey you will be directed to separate independent page that will allow you to provide information for entry into the raffle. A total of twenty, $25 gift cards will be presented to randomly selected winners.
Thank you in advance for your time.

If you have any questions or concerns, please address them to, Celia Sporer at csporer@jjay.cuny.edu or via Facebook

Thank you for you in advance for your time.

What is your current certification level?

○ EMT

○ EMT-CC

○ Paramedic

Gender

○ Male

○ Female

What is your ethnicity? Please select the one that fits best.

○ White / Caucasian

○ Black or African American

○ Hispanic or Latino

○ Asian or Pacific Islander

○ American Indian or Alaskan Native

○ Other

What is your EMS work status?

- ◯ Full Time
- ◯ Part Time
- ◯ 2/5th
- ◯ 3/5th
- ◯ Per Diem
- ◯ Other

What type of EMS service do you work for? If you work for more than one agency select the answer the reflects your primary agency.

○ Fire Based

○ Hospital Based

○ Municipal

○ Private (for profit)

○ Private (non-profit)

○ Volunteer

What country do you work in?

○ United States

○ Canada

○ England

○ Australia

○ South Africa

○ Ireland

○ Other

Other (please specify)

[   ]

How would you best describe your primary service area?

○ Large urban city

○ Medium urban city

○ Small urban city

○ Suburban community

○ Rural community

○ Other

What shift do you mostly work?

○ Tour 1- Nights

○ Tour 2- Days

○ Tour 3- Evenings

○ I work various tours with no one time slot dominating my schedule

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How long have you been working in EMS?

Years

Select a
number

What is your current age?

Age

Select a number

What is your current marital status?

○ Never married

○ In long term relationship but not legally married

○ Married

○ Separated

○ Divorced

○ Widowed

How many children do you have?

What is the highest level of formal education you have completed?

○ High school

○ Some College (no degree earned)

○ Associates Degree (A.A./A.A.S.)

○ Bachelors Degree

○ Masters Degree in Progress

○ Masters Degree

○ JD

○ PhD/PsyD

○ Other

Please indicate the degree to which each experience listed below hassled or bothered you during the past month as a result of EMS work. Please select the answer the best reflects your response.

	Bothered a lot	Bothered somewhat	Bothered a little	Didnt bother at all
Being responsible for others	◯	◯	◯	◯
Being told what to do by others	◯	◯	◯	◯
Complaints by the public	◯	◯	◯	◯
Dealing with other people's problems	◯	◯	◯	◯
Dealing with people who abuse EMS	◯	◯	◯	◯
Delivering a death message	◯	◯	◯	◯
Department handling complaints	◯	◯	◯	◯
Difficultly staying objective (not expressing my emotions)	◯	◯	◯	◯
Dirty messy rooms	◯	◯	◯	◯
Disagreement about how to do something	◯	◯	◯	◯
Doing things I don't agree with	◯	◯	◯	◯
Doing work I don't like	◯	◯	◯	◯
Equipment failure	◯	◯	◯	◯
Exams (for work purposes)	◯	◯	◯	◯
Excessive paperwork	◯	◯	◯	◯
Feelings of just being a number	◯	◯	◯	◯
Feeling of not being able to do anything	◯	◯	◯	◯
Giving bad news	◯	◯	◯	◯
Going on a dangerous call	◯	◯	◯	◯
Heavy traffic	◯	◯	◯	◯
Hoax calls	◯	◯	◯	◯
Inability to change the system	◯	◯	◯	◯
Inappropriate rules and regulations	◯	◯	◯	◯
Inconsistent application of rules and policy	◯	◯	◯	◯
Insufficient time to complete a job	◯	◯	◯	◯
Irregular meal times	◯	◯	◯	◯
Lack of clarity in operational guidelines	◯	◯	◯	◯
Lack of equipment	◯	◯	◯	◯
Low morale	◯	◯	◯	◯
Not being able to speak my mind	◯	◯	◯	◯
Not receiving recognition for a job well done.	◯	◯	◯	◯
Other members not pulling their weight	◯	◯	◯	◯
Personality clashes at work	◯	◯	◯	◯
Poor administration	◯	◯	◯	◯
Poor facilities	◯	◯	◯	◯

	Bothered a lot	Bothered somewhat	Bothered a little	Didnt bother at all
Problems with co-workers	○	○	○	○
Responsibility without the ability to make decisions	○	○	○	○
Seeing other people's misery	○	○	○	○
Sitting around then sudden activity	○	○	○	○
Too much supervision	○	○	○	○
Unreasonable expectation from others outside the department	○	○	○	○
Working with people who do not listen	○	○	○	○
Working with people who lack professionalism	○	○	○	○

These questions focus on your feelings and thoughts during the last month. For each statement, select the response that represents how often you felt or thought a certain way. Please be sure and answer all of the questions.

	Never	Almost never	Sometimes	Fairly often	Very Often
In the last month, how often have you been upset because of something that happened unexpectadly?	○	○	○	○	○
In the last month, how often have you felt that you were unable to control important things in your life?	○	○	○	○	○
In the last month, how often have you felt nervous and "stressed"?	○	○	○	○	○
In the last month, how often have you felt confident about your ability to handle your personal problems?	○	○	○	○	○
In the last month, how often have you have you felt that things are going your way?	○	○	○	○	○
In the last month, how often have you found that you could not cope with all the things that you that you had to do?	○	○	○	○	○
In the last month, how often have you been able to control irritations in your life?	○	○	○	○	○
In the last month, how often have you felt that you were on top of things?	○	○	○	○	○
In the last month, how often have you been angered because of things that were outside your control?	○	○	○	○	○
In the last month, how often have you felt difficulties were piling up so high that you could not overcome them?	○	○	○	○	○

Below are 22 statements of job-related feelings. Please read each statement carefully and decide if you ever feel this way about your job. Please select the answer that best reflects your feelings.

Please be sure and answer all of the questions.

	Never	A few times a year or less	Once a month of less	A few times a month	Once a week	A few times a week	Every day
I feel emotionally drained from my work.	○	○	○	○	○	○	○
I feel used up at the end of the workday.	○	○	○	○	○	○	○
I feel fatigued when I get up in the morning and have to face another day on the job.	○	○	○	○	○	○	○
I can easily understand how my patients feel about things.	○	○	○	○	○	○	○
I feel I treat some patients as if they were impersonal objects.	○	○	○	○	○	○	○
Working with people all day is really a strain for me.	○	○	○	○	○	○	○
I deal very effectively with the problems of my patients.	○	○	○	○	○	○	○
I feel burned out from my work.	○	○	○	○	○	○	○
I feel I'm positively influencing other people's lives through my work.	○	○	○	○	○	○	○
I've become more callous toward people since I took this job.	○	○	○	○	○	○	○
I worry that this job is hardening me emotionally.	○	○	○	○	○	○	○
I feel very energetic.	○	○	○	○	○	○	○
I feel frustrated by my job.	○	○	○	○	○	○	○
I feel I'm working too hard on my job.	○	○	○	○	○	○	○
I don't really care what happens to some patients.	○	○	○	○	○	○	○
Working with people directly puts too much stress on me.	○	○	○	○	○	○	○
I can easily create a relaxed atmosphere with my patients.	○	○	○	○	○	○	○
I feel exhilarated after working closely with my patients.	○	○	○	○	○	○	○
I have accomplished many worthwhile things in this jobs	○	○	○	○	○	○	○
I feel like I'm at the end of my rope.	○	○	○	○	○	○	○
In my work, I deal with emotional problems very calmly.	○	○	○	○	○	○	○
I feel patients blame me for some of their problems.	○	○	○	○	○	○	○

The items below deal with ways you have been coping with the stress in your life. There are many ways to try and deal with problems. These items ask what you've been doing to cope. Different people deal with things in different ways. Please indicate how often you use each of the item below to cope with stress. Try to think of each item separately and independently .

	I usually don't do this at all	I usually do this a little bit	I usually do this a medium amount	I usually do this a lot
I turn to work and other activities to take my mind off of things.	○	○	○	○
I concentrate my efforts on doing something about the situations I am in.	○	○	○	○
I tell myself "this isn't real."	○	○	○	○
I use alcohol or other drugs to make myself feel better.	○	○	○	○
I get emotional support from others.	○	○	○	○
I give up trying to deal with it.	○	○	○	○
I take action trying to make the situations better.	○	○	○	○
I refuse to believe it is happening.	○	○	○	○
I say things to let my unpleasant feelings escape.	○	○	○	○
I get advice and help from other people.	○	○	○	○
I use alcohol and other drugs to help me get through it.	○	○	○	○
I try to see it in a different light to make it seem more positive.	○	○	○	○
I criticize myself.	○	○	○	○
I try to come up with a strategy about what to do.	○	○	○	○
I get comfort and understanding from someone.	○	○	○	○
I have given up on the attempt to cope.	○	○	○	○
I look for something good in what happens.	○	○	○	○
I make jokes.	○	○	○	○
I do something to think less about it, such as going to the movies, watching TV, reading, daydreaming, sleeping or shopping.	○	○	○	○
I accept the reality of the facts that happen.	○	○	○	○
I express my negative feelings.	○	○	○	○
I try to find comfort in my religion or spiritual beliefs.	○	○	○	○
I try to get advice from other people about what to do.	○	○	○	○
I learn to live with it.	○	○	○	○
I think hard about the step to take to deal with it.	○	○	○	○

	I usually don't do this at all	I usually do this a little bit	I usually do this a medium amount	I usually do this a lot
I blame myself for things that happen.	○	○	○	○
I pray or meditate.	○	○	○	○
I make fun of the situation.	○	○	○	○

How safe do you consider yourself to be while at work?

Very Safe	Somewhat safe	Neither safe or unsafe	Somewhat unsafe	Very unsafe
○	○	○	○	○

In the past 12 months have you been assaulted at work by any of the following people? Check all that apply.

☐ Patient

☐ Patient family member

☐ Co-worker

☐ Bystander

☐ I have not been assaulted at work in the last 12 months

Please indicate how often in the last 12 month you have experienced each form of aggression while on the job. Select the answer that best represents your experience.

	Never	Once	2-3 times	4 or more times
Have you been threatened with a weapon while you have been at work?	○	○	○	○
Has anyone threatened to damage or steal your personal property?	○	○	○	○
Has anyone threatened to damage or steal your workplace property?	○	○	○	○
Has your personal property been damage or stolen?	○	○	○	○
Has your workplace property been damaged or stolen?	○	○	○	○
Have you been sexually assaulted at work?	○	○	○	○
Have you been verbally threatened at work?	○	○	○	○
Have you experienced sexual harassment at work?	○	○	○	○

How much worse is your overall health now compared to your health when you first started working in EMS?

○ Much Worse   ○ Worse   ○ The Same   ○ Better   ○ Much Better

How would you describe your health in the last 6 months?

○ Very Good

○ Good

○ Neither Good or Bad

○ Bad

○ Very Bad

Which of the following has your employer provided to you to help you handle stress? Please check all that apply.

- [ ] In-service intervention and training
- [ ] Critical Incident Stress Debriefing (CISD)
- [ ] Social gatherings
- [ ] Counseling and rehabilitation programs
- [ ] Time allocated for healthy activities (i.e. exercise)
- [ ] Employee assistance programs (EAP)
- [ ] Involvement in organization changes
- [ ] Other
- [ ] Nothing has been provided

In general, do you believe concerns about confidentiality, including concerns about supervisor and management finding out about things, are a barrier to EMS personnel seeking help/support after an disturbing incident?

Always	Frequently	Sometimes	Never	Don't know
○	○	○	○	○

You have now completed the survey. Your participation was greatly appreciated. Please use the link below to enter you information to be entered in the raffle.

https://www.surveymonkey.com/s/W2CG6W7

Prizes: $25 gift cards (20 will be awarded)
Prizes will be awarded at the close of data collection.

Please note that no IP information will be collected or stored for the link above.

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THE CITY UNIVERSITY OF NEW YORK
Graduate Center
Criminal Justice

ORAL OR INTERNET BASED INFORMED CONSENT SCRIPT

Title of Research Study: Stress and Coping in Emergency First Responders: An Examination of EMTs and Paramedics

Principal Investigator: Celia Sporer, M.A.

Thank you for considering being part of this study. This study is being undertaken a part of a dissertation project for the completion of a degree in criminal justice at the City University of New York (CUNY) Graduate Center.

You are being asked to participate in this research study because you are either an EMT or paramedic. A sample of 240 EMTs and paramedics is being sought for this study. The purpose of this research study is to examine sources of stress and coping responses in EMTs and paramedics. The principle investigator for this study has been working in EMS for over 10 years and it is based on her observations and experiences that this study has taken shape. It is hoped that the information gathered in this study will help to development a better understand these issues in the EMS community, which will in turn help to improve work conditions and support systems. If you agree to participate, we will ask you to complete an online survey. The survey is 10 pages and should take between 40-50 minutes to complete on average. There is little to no risk to you in completing this survey. If you choose to participate in this study, you will be entered into raffle to receive a $25 gift card. A total of twenty (20) $25 gift cards will be awarded at the close of data collection which is anticipated to be on or around April 20. 2015. The survey itself is anonymous. No IP information is being collection as part of the survey process. The last page of the survey contains a link that will allow you to enter your personal information in a separate location if you choose. By providing your personal information you will be able

to elect to receive follow up information on results and conclusions of this study as well as to be entered into the raffle. No computer IP information will be collected for the raffle information page. By proceeding with this survey you are consenting to participate in the research and allowing for the information collected to be used for the purposed outline above.

Your participation in this research is voluntary. If you have any questions, you can contact Celia Sporer at csporer@jjay.cuny.edu.

If you have any questions about your rights as a research participant or if you would like to talk to someone other than the researchers, you can contact CUNY Research Compliance Administrator at 646-664-8918.

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Appendix C

Letter to Facebook Group Administrators

My name is Celia Sporer. I have been an EMS provider (EMT and paramedic) in the NYC area for over 10 years. I am in the process of completing a PhD in criminal justice at the City of New York (CUNY) Graduate Center. As part of my degree requirement I need to complete original research including data collection. I am looking to examine stress and coping in EMS providers. It is my hope that you will be able to aid me in my data collection efforts. I am requesting permission to post the text below on your Facebook page to recruit participants. The link below will direct participant to an anonymous online survey. The survey should take 20-25 minutes to complete on average. At the end of the survey they will be entered to win one of twenty (20) $25 gift cards that will be raffled off at the end of data collection (estimated completion of data collection is June 30, 1015). By allowing this post you would be helping to provided important information on stress and coping in a population that is often ignored and understudied. The information provided by this study will provide a foundation to not only prevention but also for effective stress related interventions for EMS providers. Please help me get the word out about this important study. Thank you in advance for your help. If you have any questions, you can feel free to contact me via Facebook or via email at csporer@jjay.cuny.edu Facebook Post Text: My name is Celia Sporer. I have been an EMT and paramedic in the New York City area for over 10 years. As part of my PhD course work, I am looking to examine stress in EMS providers. The goal is to better understand stress in EMS and improve how EMS operates with respect to the health and wellbeing of its providers. I hope that you will be able to aid me in my data collection effort. Below is a link to a totally anonymous online survey. The survey should take about 20 minutes to complete. In appreciate of you completion of the survey, at the end of the survey you can be entered into a raffle to win one of twenty, $25 gift cards. Thank you in advance for your help. If you have any questions you can feel free to contact me via Facebook or via email at csporer@jjay.cuny.edu https://www.surveymonkey.com/r/XBDNWTH

Appendix D

You have now completed the survey. Your participation was greatly appreciated. Please use the link below to enter you information to be entered in the raffle.

https://www.surveymonkey.com/s/W2CG6W7

Prizes: $25 gift cards (20 will be awarded)
Prizes will be awarded at the close of data collection.

Please note that no IP information will be collected or stored for the link above.

You have reached this page because you completed the Stress and Coping in EMTs and Paramedics survey. Please enter the information below so that you may be entered into the raffle.
Prize: $25 Gift Card
Number of Prizes: 20
Please not this information will not be in any way linked to the responses you provided in the survey.

1. Name

[ ]

2. Mailing Address

[ ]

3. Email Address

[ ]

4. Do you wish to be informed of the results and conclusions of this study?

○   Yes- Please email me the results and conclusion of this study

○   No- Just enter me in the raffle.

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