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A Qualitative Investigation into the Trauma Exhibited by First Responders Tackling the Opioid Epidemic in Tennessee

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by

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ABSTRACT

A Qualitative Investigation into the Trauma Exhibited by First Responders

Tackling the Opioid Epidemic in Tennessee

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Recent increases in opioid overdose rates have changed the role of first responders on the front lines of this national crisis. The present study used a semi-structured qualitative interview to investigate how the increase in opioids, opioid-related harm, and opioid-related death within Tennessee has affected the first responder population. Law enforcement officers, firefighters, and paramedics ($N = 30$) from rural-serving counties in Tennessee completed a semi-structured interview. Eight themes emerged from the interviews: (1) mental health symptoms, including posttraumatic stress disorder and secondary traumatic stress symptoms; (2) coping behaviors; (3) available resources; (4) barriers to accessing resources; (5) recommendations for what is needed; (6) hardest circumstances; (7) discrepant thoughts and feelings; (8) perception of role in reducing the impact of the epidemic. This study provides novel insights into the impact of the opioid epidemic on Tennessee first responders, and can inform future efforts to reduce adverse outcomes in these care providers.

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Chapter 1. Introduction

As part of their job responsibilities, first responders experience repeated exposure to traumatic events, known as critical incidents, that place them at increased risk for physical harm and psychological trauma. They witness a range of critical incidents, such as car accidents, child abuse, shootings, and natural disasters. When responding to critical incidents, they are not only exposed to injury and death but are also susceptible to potentially disturbing emotional and cognitive experiences. The consequences of working as a first responder can translate to adverse psychological symptoms and high prevalence rates of mental health disorders within their population (Jones et al., 2018; Paulus et al., 2017; Stanley et al., 2015; Wagner et al., 2010).

A growing amount of research has investigated the adverse consequences of being a first responder. In particular, previous studies have found increased rates of posttraumatic stress disorder (PTSD), depression, anxiety, sleep disturbances, and substance use among first responders (Bentley et al., 2013; Haddock et al., 2017; Paulus et al., 2017; Wagner et al., 2010). Some researchers have investigated specific events that contribute to adversity in their population. For example, Osofsky and colleagues (2011) found that first responders who attended to the aftermath of Hurricane Katrina had increased levels of posttraumatic stress, depression, and alcohol use, as well as significant relationship impairment.

However, there has been little to no research (i.e., two other studies; Elliot et al., 2019; Pike et al., 2019) conducted examining the consequences of repeated exposure to trauma among first responders due to the opioid epidemic. Opioids in the form of prescription pills, heroin, and synthetic opioids (e.g., fentanyl [i.e., an opioid usually mixed with heroin, cocaine, or counterfeit prescription pills; Centers for Disease Control and Prevention [CDC], 2019a], fentanyl analogs, etc.) have disseminated throughout the communities in the United States (CDC, 2018a). First

responders are on the front lines of the growing public health crisis and have had to significantly adjust their work duties given the high rise in opioid overdoses. As opioid overdose rates continue to increase in communities, first responders have been faced with increased medical call loads and safety hazards (Chiu et al., 2018; Cepeda et al., 2017; Howard & Hornsby-Myers, 2018; United States Drug Enforcement Administration [DEA], 2017).

The current study used a semi-structured qualitative interview to investigate the effects of responding to the opioid epidemic within the first responder population (i.e., law enforcement officers, firefighters, and paramedics). The interviews specifically explored how the increase in opioids, opioid-related harm, and opioid-related deaths within Tennessee has elicited mental health symptoms within first responders who are repeatedly exposed to such incidents. In addition to this, coping behaviors and available resources for first responders attending to substance use calls were evaluated. Overall, the purpose of this study was to address the gap in the literature, and promote an awareness of what first responders are continuously facing during the opioid epidemic.

Chapter 2. Background Literature

Introduction

Previous research has found that exposure to trauma is a common occurrence during the lifetime of individuals. In particular, it has been documented that approximately 60% of men and approximately 50% of women experience at least one traumatic event (i.e., a shocking and dangerous event that an individual witnesses or experiences) during their lifetime (United States Department of Veterans Affairs, 2019). This finding is even more prevalent for first responders given their line of duty. For example, police officers experience on average over 3 traumatic incidents (i.e., an event that causes a significant emotional reaction which can interfere with job responsibilities either at the incident or later on) during a six-month period (Patterson, 2001).

Frequently, first responders are perceived as invincible in terms of dealing with tragedy (International Association of Fire Chiefs, 2013); however, this is not a realistic or fair expectation. They are at an increased risk of developing psychological and physiological trauma due to repeatedly responding to high-stress situations (Mccaslin et al., 2006; Patterson, 2016). Compounding already stressful job duties, first responders are now faced with the opioid crisis and are being profoundly affected by it (Chiu et al., 2018; DEA, 2017). With the escalating rates of opioid overdoses in the United States, first responders are confronted with burdensome obligations. Not only are they responding to repeated overdoses in the same individuals but are also at risk of contact overdoses (i.e., accidental exposure to an opioid through inhalation, mucous membranes, dermal, ingestion, and percutaneous; Chiu et al., 2018), needle stick injuries (i.e., wounds caused by needles accidentally puncturing the skin; Cepeda et al., 2017), and blood borne pathogens (i.e., infectious microorganisms in the human blood that can cause diseases, such as human immunodeficiency virus and hepatitis C; Cepeda et al., 2017; United States

Department of Labor, n.d.), adding to the stress of their job. For instance, in a sample of 1,000 police officers, 13 reported needle stick injuries, and nine of these injuries resulted in hepatitis C (de Perio, 2017).

Thus far in the literature, there has been very limited research investigating the psychological consequences of the epidemic in the first responder population. The following passages outline the prevalence rates and course of the opioid epidemic, the shift in first responder work duties, the psychological and physiological health in first responders, coping behaviors that are employed, and available resources and interventions. This summary evaluates the growing impact of the opioid epidemic and how it may influence responders' well-being.

Prevalence Rates of Opioid Misuse

In 2017, the United States Department of Health and Human Services (HHS, 2019) declared a public health emergency due to the rapid rise in synthetic opioid overdoses. Data collected by the Tennessee Department of Health (TDH, 2020) confirmed that of 1,818 Tennessee overdose deaths in 2018, approximately 70% were from opioids. Tennessee's opioid overdose death rate is 19.9 deaths per 100,000, which is higher than the national average of 14.6 deaths per 100,000 (National Institute on Drug Abuse, 2020; TDH, 2020). Furthermore, during that same year, the CDC National Center for Injury Prevent and Control (NCIPC, 2019) documented that Tennessee has the third highest state opioid prescription rate of 81.1 for every 100 persons, which is approximately one and a half times greater than the national average of 51.4 for every 100 persons (NCIPC, 2019). Although the prescription prevalence rates are unprecedentedly high, in 2018 more Tennesseans died from fentanyl than they did from prescription opioids (TDH, 2020). These prevalence rates not only document what first

responders are increasingly faced with, but they also introduce new safety concerns for their population, such as exposure to fentanyl (Howard & Hornsby-Myers, 2018).

Course of the Opioid Epidemic

The opioid epidemic is affecting the entire nation, as well as first responders, and the precipitates of this drug epidemic are different from other drug problems. Instead of being spurred by illicit drugs shipped in from other countries or manufactured by illicit underground operations, the use of opioid analgesics, also known as opioid prescriptions (e.g., codeine, morphine, oxycodone), for the management and treatment of moderate to severe pain was a driving factor of the dramatic increase in opioid-related overdose deaths (HHS, 2019). These pain medications were initially prescribed to patients combating cancer, but they eventually led to non-cancer pain-related opioid prescriptions (United States General Accounting Office [GAO], 2004). For example, the pharmaceutical company, Purdue Pharma, manufactured OxyContin in 1995 to be prescribed to any individual exhibiting pain ranging from moderate to severe (GAO, 2004). It was not until five years later that the prevalence of misuse and overdose from OxyContin was recognized (GAO, 2004). Consequently, this led to an increase in OxyContin prescriptions for non-cancer patients, from about 670,000 in 1997 to about 6.2 million in 2002 (i.e., about an 826% increase; GAO, 2004). In contrast, OxyContin prescriptions for cancer patients only increased from about 250,000 in 1997 to a little over 1 million in 2002 (i.e., about a 300% increase; GAO, 2004). Since then, it has been found that opioid analgesics are responsible for more deaths than the number of deaths from motor vehicle accidents (CDC Wide-Ranging Online Data For Epidemiologic Research, 2019).

Opioid prescription misuse has also acted as a precursor to illicit heroin use (Guarino et al., 2018; Pollini et al., 2011;), and as such, the use of the illicit opioid heroin has also been

found to be dramatically increasing throughout communities (CDC, 2019b). The number of people meeting the "Diagnostic and Statistical Manual of Mental Disorders (DSM-5)" criteria for a heroin use disorder has increased from 214,000 in 2002 to 626,000 in 2016 (i.e., about a 193% increase; Substance Abuse and Mental Health Services Administration [SAMHSA], 2017). It has also been documented that there has been a fivefold increase in the heroin-related overdose death rate from 2010 to 2017 (Rudd et al., 2016).

Most recently, the use of illicitly manufactured fentanyl has been cited for exacerbating the opioid overdose death rate (DEA, 2017; CDC, 2019a). Through the Enhanced State Opioid Overdose Surveillance (ESOOS) program, fentanyl was detected in 56.3% of 5,152 opioid overdose deaths in 10 states between July 2016 and December 2016 (O'Donnell et al., 2017). In addition to these findings, fentanyl has also been reported to be 50 times stronger than heroin and up to 100 times stronger than morphine (CDC, 2019a). For example, a lethal dose of heroin is about 30 milligrams for an average sized person, while a lethal dose of fentanyl is about 2 milligrams (DEA, 2020). Given the potency of fentanyl, it has been determined that it plays a causal role in fatal opioid overdoses. Of note, in addition to being deadly for users, fentanyl poses a risk to anyone who comes in contact with it, putting first responders at risk as well. A lethal dose of fentanyl can be accidentally inhaled or absorbed through the skin (National Institute for Occupational Safety and Healthy [NIOSH], 2011).

Shift in Duties

First responders are often the initial trained professionals to arrive on the scene of an emergency and provide lifesaving measures. First responders include but are not limited to, police officers, firefighters, and paramedics. Police officers' job duties have historically included patrolling assigned areas of the community, responding to dispatched calls, enforcing laws,

making arrests, issuing citations, and testifying in court cases (Criminal Justice USA, 2019). Firefighters are responsible for extinguishing fires, evacuating occupants in burning structures, performing search and rescues, conducting inspections for hazards and enforcing codes, responding to fire alarms, and attending to emergency medical incidents such as auto accidents and gas leaks (Government Jobs, n.d.). Paramedics administer life support and first-aid treatment, operate equipment such as external defibrillators, administer medications when necessary, and drive the mobile intensive care unit to the determined hospital (Target Jobs, n.d.).

As the opioid epidemic continues to gain momentum throughout communities, first responders are facing increased numbers of medical calls. First responders, especially police officers and firefighters, have had to shift their work roles to meet the demands of the opioid epidemic. Originally, paramedics were the only trained first responders allowed to administer the drug naloxone (i.e., an opioid antidote). However, in recent years, naloxone administration training has spread throughout law enforcement and firefighter stations, as well as being offered to the general public (Davis et al., 2014; HHS, 2018).

Studies have found that training first responders on how to administer naloxone to reverse the effects of an opioid overdose has received positive feedback. In one study, police officers reported increased feelings of competence to administer naloxone and to effectively deal with an opioid overdose event (Purviance et al., 2017). In another study, police officers who received naloxone administration training reported increased optimism (i.e., positive views towards naloxone's efficacy, belief in one's ability to administer naloxone, and belief in one's ability to help individuals), while also reporting decreased burnout (i.e., exhaustion, frustration, or cynicism towards one's job roles) and stigma regarding harm reduction models (Haug et al., 2016).

Although there has been positive feedback of naloxone administration training, first responders are still not immune to opioid-related traumatic events. Following an overdose, individuals who do not use opioids as prescribed or consume illicit opioids are at an increased risk for a repeat overdose (Hasegawa et al., 2014; Larochelle et al., 2016; Olfson et al., 2018). For example, one study found that within a 12-month period, one in five patients had subsequent overdoses (Olfson et al., 2018). Reviving a person back to life after an opioid overdose and then finding them unresponsive again the next week or even day, is wearing on first responders and at times even frustrating (Pike et al., 2019). Situations like the preceding are a recurrent reality that they have to face in their line of work and may impact responders' psychological wellbeing.

Furthermore, first responders are also at risk for accidental contact with fentanyl. As an example, in January 2018, first responders in an unspecified location in the United States reported to an opioid overdose where they conducted the necessary procedures to resuscitate a woman unconscious in her hotel room. Following the incident, one of the firefighters who performed bag-valve-mask ventilation and intubation on the victim ended up in the hospital for developing symptoms such as lightheadedness and palpitations. These symptoms were speculated to be related to contact with fentanyl. The firefighter was administered intravenous fluids and three doses of naloxone (Chiu et al., 2018). A similar incident occurred to a police officer in Liverpool, Ohio who arrested two individuals that were involved in a drug transaction. Although the police officer wore gloves during the arrest, upon returning to the station a colleague of his pointed out something on his uniform in which the officer proceeded to wipe away with his bare hands. After a few minutes, the officer began overdosing on what he later found out was a result of wiping fentanyl from his uniform. Paramedics administered naloxone and rushed him to the hospital where they gave him an additional three doses (Mettler, 2017).

Incidents like these have raised the alarm and given reason for first responders to arm themselves with enhanced personal protective equipment (PPE) when responding to potential drug-related incidents. First responders have been urged to wear specific PPEs when responding to incidents involving opioid exposure. For example, NIOSH (2020) suggests that first responders should at minimum wear nitrile gloves, safety glasses, masks, and wrist and arm protection. For more protection, they also recommend that first responders utilize a chemical resistant suit, air-purifying respirators, and self-contained breathing apparatuses (NIOSH, 2020). The substantial increase in gear that first responders are required to wear to meet the increasing risks of opioid epidemic has mirrored the shift in their job duties.

Mental Health of First Responders

First responders are responsible for providing multiple services during critical events, which puts them at risk for stress, trauma, and adversity on duty. With the increasing frequency and intensity of overdose-related traumatic experiences, the cumulative impact on the overall mental health of the first responders should be of urgent concern for emergency personnel agencies. Previous research has found that first responders experience various adverse outcomes due to trauma-exposure. Notably, firefighters and police officers have been documented to have higher PTSD levels than the general public (Wagner et al., 2010; Wagner & O'Neil, 2012; Austin-Ketch et al., 2012).

In addition, firefighters have also been documented to have increased symptoms of generalized anxiety disorder, major depression, and sleep disturbances compared to the general population. For example, in a recent study investigating psychiatric symptoms in rural firefighters and emergency medical technicians (EMT)/paramedics, the researchers found that 14% reported moderate-to-severe and severe major depressive disorder symptoms (6.7% in

general population; American Psychiatric Association [APA], 2017a), 28% reported moderate-to-severe and severe generalized anxiety disorder symptoms (2% in general population; APA, 2017b), 26% reported PTSD symptoms (8.7% in general population; APA, 2017c), and 93% reported poor sleep quality (34.8% in general population; Jones et al., 2018; Liu et al., 2016).

Several studies have also examined drug- and alcohol-related disorders within the first responder population. In a sample of urban male firefighters, depressive and posttraumatic stress symptoms were positively associated with alcohol-related outcomes (Paulus et al., 2017). In another sample of 112 firefighters, 58% exhibited binge drinking behavior, 20% engaged in current nicotine use, and 5% overused caffeine (Carey et al., 2011). In a research investigation with 1,913 female firefighters, 40% reported binge drinking in the past 30 days, and of those, 16.5% screened positive for potential problem drinking (Haddock et al., 2017). Potential problem drinking was also found to be associated with higher prevalence of anxiety and depression diagnoses, and posttraumatic stress symptoms (Haddock et al., 2017).

It is noteworthy that the above prevalence rates are also greater than the general population. More specifically, 25.8% of the general population engages in binge drinking (National Institute on Alcohol Abuse and Alcoholism [NIAAA], 2020), 19.3% use nicotine (Wang et al., 2018), and 5.6% screen positive for alcohol use disorder (NIAAA, 2020). A clear pattern is present that makes it a reasonable hypothesis that first responders may be turning to substances when combating the strains that accompany their occupation.

Suicide Risk

Concurrent with the negative outcomes stated above, the disproportionately high rates for suicidal ideation and suicide attempts in the first responder population have been increasingly cited throughout the literature (Abbot et al., 2015; Jones et al., 2018; Stanley et al., 2015;

Violanti et al., 2013;). Heyman and colleagues (2018) found that both police officers and firefighters are more likely to die by suicide than in the line of duty. In 2019, 239 officers died by suicide (Blue H.E.L.P., n.d.), compared to 148 deaths in the line of duty (Officer Down Memorial Page, n.d.). Similarly, 120 firefighters died by suicide in 2019 (Firefighter Behavioral Health Alliance, n.d.), compared to 64 who died in the line of duty (United States Fire Administration, n.d.). Along with firefighters and police officers, paramedics also have high suicidal ideation. In one study comparing a sample of over 5,000 first responders (i.e., dispatchers, correctional workers, firefighters, police officers), paramedics exhibited past-year (15.4%) and lifetime suicidal ideation (41.1%) almost double that of firefighters (8.5%; 25.2%) and police officers (8.3% - 9.9%; 20.5% - 25.7%; Carleton et al., 2018). Paramedics have significantly higher rates of past year (.9%) and lifetime suicide attempts (9.8%) compared to firefighters (.3%; 3.3%) and police officers (.2%; 2.1%-2.4%; Carleton et al., 2018).

Physical Health in First Responders

Mental health conditions are highly prevalent within the first responder population. This disparity can be deleterious to their physical health, ultimately interfering with daily work duties. For example, several studies on 9/11 first responders have found that PTSD acts as a mediator between 9/11 exposure and increased respiratory symptoms and abnormal spirometry results (i.e., a spirometry test is conducted to assess how well the lungs are working; Kotov et al., 2015; Luft et al., 2011). Additionally, Maia and colleagues (2007) found in a sample of police officers that those diagnosed with PTSD had decreased perceived health and had more medical consultations during the last 12 months compared to police officers diagnosed with subthreshold PTSD.

Furthermore, stress is associated with cardiovascular disease and metabolic syndrome in police officers. In particular, the risk factors that contribute to cardiovascular disease include hypercholesterolemia (i.e., high cholesterol), hypertension (i.e., unusually high blood pressure), and physical inactivity (Franke et al., 2002). Abdominal obesity and decreased high-density lipoprotein cholesterol (i.e., good cholesterol that removes excess cholesterol from the arteries; MedlinePlus, 2019) to contribute to metabolic syndrome in female police officers (Hartley et al., 2011). The previous findings suggest that, even among first responders who are carefully selected and trained for the job, exposure to trauma and psychological symptoms can be associated with physical hardships.

Coping Behaviors Employed by First Responders

Due to the high prevalence of mental and physical illnesses in first responders, researchers have also been investigating adaptive and maladaptive coping techniques employed within their population (Bentley et al., 2013; Dowdall-Thomae et al., 2012; Kirby et al., 2011). In a sample of paramedics, adaptive coping strategies (i.e., seeking support, expressing emotions, attempting to problem-solve to relieve stress, and positive reframing when the problem cannot be resolved) were associated with promoting positive changes after traumatic experiences and lower levels of intrusion (i.e., intrusive thoughts, feelings, and imagery, nightmares, and dissociative-like re-experiencing; Kirby et al., 2011). Maladaptive coping strategies (i.e., avoiding the problem, disengagement, denial, blaming external factors, self-punishment, self-blame, rumination, and a negative perspective) were associated with adverse symptoms including intrusion, avoidance (i.e., numbing of responsiveness and avoidance of feelings, situations, and ideas), and hyperarousal (i.e., anger, irritability, hypervigilance, difficulty concentrating, and heightened startle response; Kirby et al., 2011).

Problem-focused coping (i.e., coping that is designed to alleviate the stressful situation) and seeking social support within a sample of firefighters had a positive relation to outcome coping efficacy (i.e., "the degree to which coping strategies are perceived to be effective by firefighters when transitioning from one critical incident to a second"), while self-wishful thinking and avoidance had a negative relation to outcome coping efficacy (Dowdall-Thomae et al., 2012). Although the above research provides evidence that first responders are trying to employ effective coping techniques, 69% are still reporting not having enough time to recover in between traumatic events (Bentley et al., 2013).

Resources for First Responders

Given the increased risk of psychological and physiological consequences and the short amount of time between critical incidents, effective behavioral health interventions to increase resiliency and reduce the risk of behavioral health problems are a necessity for first responders. A wide range of interventions are described in the literature. For example, the Road to Mental Readiness for First Responders program was developed in 2013 with a focus on police officers (Szeto et al., 2019). It is a four-hour training that contains the following three objectives: increase mental health literacy (i.e., familiarity with mental health concepts and confidence in using accessible resources to help oneself and others), teach stress management skills, and change responders' perspectives on mental health services (Fikretoglu et al., 2019). Since the development of the program, it has been adapted for paramedics, firefighters, 911 call centers, and correctional officers (Szeto et al., 2019). Research findings have found that the program effectively increases resiliency while also decreasing mental health stigma (i.e., attitudes, stereotypes, and deliberate behaviors towards individuals with mental illnesses) in first responders (Szeto et al., 2019).

Another promising intervention is the Crisis Intervention Team model. This intervention pairs first responders with mental health providers in creating mental health awareness (Watson & Fulambarker, 2013). It is a 40-hour training that educates first responders on mental illness signs and symptoms, appropriate mental health treatments, co-occurring mental health disorders, legal issues, and de-escalation techniques (Watson & Fulambarker, 2013). Often the trainings include panels of providers, family members, and individuals with mental illness, creating an integrated behavioral health model (i.e., combing primary health care with mental health care in one setting; Compton et al., 2011). The Crisis Intervention Team model has been implemented in the police officer population and results have shown increases in knowledge about mental illness and its treatments, self-efficacy for reaching out to individuals experiencing psychosis and suicidality, de-escalation techniques, and ability to connect individuals to mental health services (Compton et al., 2014). The education gained from this training is not only applicable when responding to dispatched calls but can also help identify mental illnesses among first responder colleagues.

Another equally important intervention is the Resilience Promotion Training. This intervention is a five-day program for special force police officers that trains them on stress management (Andersen et al., 2015). In particular, officers focus on positive emotions while engaging in controlled breathing during critical incidents (Andersen et al., 2015). This intervention has been found to decrease stress and stress physiology (i.e., reduced heart rate and controlled breathing) during critical incident scenarios (Andersen et al., 2015).

Although interventions have been implemented with the first responder population, several limitations have been observed, such as stigma negatively impacting first responders from seeking mental health services (Haugen et al., 2017; Karaffa & Koch, 2015). For example,

Wrightsman and colleagues (2002) found that police officers are reluctant to seek mental health interventions for fear of being humiliated by colleagues, having their gun and badge seized by their supervisor, or being reassigned to a different case. Similarly, in a qualitative study conducted by Faulkner (2018), the researcher found that police officer help-seeking behaviors were predominantly affected by identity issues, fear of work-related consequences, and skepticism and mistrust, especially of mental health providers. While various programs have been implemented to assist first responders with coping after critical incidents, there is still a significant gap in program utilization. Further investigation into first responders' opinions on what would help them increase their services usage should be a research priority.

The Present Study

While several critical studies have investigated the significant impacts of trauma on psychological and physical well-being within first responders, there is a lack of research examining the consequences of dealing with the opioid epidemic within this population. There has been an increasing shift in the work duties of first responders in the United States due to their increased presence at medically-oriented incidents relating to opioids. Since the beginning of the epidemic, harm reduction and prevention strategies have been focused on the patients (Karamchandani et al., 2018; Volkow et al., 2014). For example, researchers have been investigating the impact of medication-assisted therapies (e.g., methadone and buprenorphine) for treating patients with an opioid addiction disorder (Volkow et al., 2014). Likewise, researchers have also been examining the efficacy of needle and syringe programs (i.e., community resources that provide individuals with sterile needles and syringes to decrease the transmission of blood-borne pathogens when sharing injecting supplies; Avert, 2019) in reducing

blood-borne infection transmission in intravenous drug users (Fernandes et al., 2017; Wodak & Cooney, 2006).

While the preceding research is essential, surprisingly little attention has been paid to the outcomes experienced by law enforcement officers, firefighters, and paramedics responding to overdoses. With the increasing frequency of opioid overdose-related events, the risk of increased trauma exposure for first responders should be evaluated. Given the lack of research on the effects of the opioid epidemic in the first responder population, the current study aims to fill this gap in the literature. Informed by research investigating other stressors on first responders and to ensure a bottom-up understanding of the profiles of stressors, the current research uses semi-structured qualitative interviews to investigate the perceived effects of responding to the opioid epidemic within the first responder population. The interviews specifically focused on exploring how the increase in opioids, opioid-related harm, and opioid-related death within Tennessee rural-serving counties has elicited mental health symptoms in first responders. In addition to this, coping behaviors and available resources for first responders attending to substance use calls were evaluated. For the purpose of this research law enforcement officers, firefighters, and paramedics were the three groups being interviewed.

Research Questions

1. What mental health symptoms are reported in the first responder population as being related to the opioid epidemic in Tennessee?
2. What coping behaviors do first responders employ following opioid-related incidents?
3. What resources are available to first responders in Tennessee to utilize following opioid-related incidents?

4. Do first responders feel that the available resources are sufficient in dealing with the consequences of the opioid epidemic and if not, what would they like to see implemented?

Chapter 3. Method

Overview

This chapter examines the research approach, the participant demographics, the construction of the measures that were utilized, and the procedures for recruitment, screening eligibility, and interviewing participants. Methods of analysis will be discussed including transcribing audio recordings, coding themes and subthemes, and linking themes to the posed research questions. This chapter concludes with the ethical considerations of the research.

Qualitative Approach

In order to examine the repercussions that the opioid epidemic has posed on first responders, a phenomenological approach was taken, which is a qualitative method that focuses on the lived experiences and commonalities among individuals (Lewis, 2015). Qualitative methods were utilized for this study due to the exploratory nature of the research questions. Qualitative research involves a procedure known as induction, whereby data is collected pertaining to an area of research interest, and from this data, the researcher constructs different theories from the patterns observed (Bernard, 2011). It is used when the outcome of a study is meant to explore human experiences rather than yielding generalizable findings, such as in quantitative research (Austin & Sutton, 2014). Essentially, "to understand a complex phenomenon, you must consider the multiple 'realities' experienced by the participants themselves—the 'insider' perspectives" (Suter, 2012, p. 344). Using a qualitative approach allows the researcher to gain a more in-depth understanding of the unique experiences of first responders combating the opioid epidemic in Tennessee.

Participants

Participants (N = 30) were first responders age 21-63 (M = 41.23, SD = 12.48) recruited from Tennessee rural-serving counties. Ninety-three percent of the sample was male, which mirrors the typical gender distribution within the first responder profession (National Fire Protection Association, 2020). The ethnic makeup of the sample was unitary and largely representative of local demographics; all participants self-identified as Caucasian/White. Participants were 97% heterosexual and 3% bisexual. Participants' level of education was predominantly high school degree (30%) and associates degree (30%), followed by bachelor's degree (23%), master's degree (13%), and other (3.3%). Sixty percent of participants were married, 23% were in a relationship, 10% were single, and 7% were divorced. Thirteen percent of participants disclosed being diagnosed with a mental health disorder, which included depression, generalized anxiety disorder, and PTSD.

Forty-three percent of the sample was identified as a law enforcement officer (n = 13), followed by 30% being firefighters (n = 9), 13% being both firefighters and paramedics (n = 4), 10% being paramedics (n = 3), and 3% being both firefighter and a law enforcement officer (n = 1). The ranks of law enforcement officers included police technician/community service officer (3%), police officer/patrol officer/police detective (27%), police corporal (3%), chief of police (7%), and other (10%; i.e., assistant special agent in charge, major, and commander/agent). The ranks of firefighters included firefighter/EMT (13%), firefighter/paramedic (7%), engineer (3%), lieutenant (7%), captain (13%), assistant chief (3%), fire chief (3%), other (3%). The ranks of paramedics included paramedic EMT-P (20%) and other (7%; i.e., advanced EMT and division chief).

Participants total years of service was as follows: longer than 20 years (50%), 16-20 years (10%), 11-15 years (7%), 6-10 years (14%), 3-5 years (7%), and 1-2 years (14%). Participants were asked how many opioid-related calls they have responded to date, and responses ranged from five to 2,000 (M = 268.39, SD = 462.95). Forty-five percent of participants identified their knowledge of substance use as moderate, followed by 28% reporting knowing a lot, 17% knowing moderate-to-a lot, and 10% knowing a little. The most common opioids participants reported encountering on their opioid-related calls included heroin (59%), fentanyl (19%), prescription medications (33%), and medication assisted treatment medications (6%; i.e., methadone and suboxone). The most common circumstances they faced when responding to opioid-related calls included fatal and non-fatal overdoses (73%), repeat patients (53%), combativeness (30%), illegal selling (10%), and economically under-resourced patients (10%). Please refer to Table 1 for all descriptive statistics.

Table 1

Descriptive Statistics of Demographics

Variables	*n*	(%)
Age		
21-34	11	37
35-48	8	26
49-63	11	37
Gender		
Male	28	93
Female	2	7
Ethnicity		
Caucasian/White	30	100
Sexual Orientation*		
Heterosexual	28	93
Bisexual	1	3
Level of Education		
High school	9	30

Associates degree	9	30
Bachelor's degree	7	23
Master's degree	4	13
Other	1	3
Relationship Status		
Married	18	60
In a relationship	7	23
Single	3	10
Divorced	2	7
Mental Health Disorder		
Yes	9	30
No	21	70
First Responder Profession and Ranking		
Law Enforcement Officer	13	43
Police officer/patrol officer/police detective	8	27
Police corporal	1	3
Chief of police	2	7
Other	3	10
Firefighter	9	30
Firefighter/EMT	3	10
Lieutenant	2	7
Captain	3	10
Assistant Chief	1	3
Other	1	3
Paramedic	3	10
Paramedic (EMT-P)	3	10
Other	2	7
Firefighter/Paramedic	4	13
Firefighter/EMT [a]	1	3
Driver Engineer [a]	1	3
Captain [a]	1	3
Paramedic (EMT-P) [b]	3	10
Firefighter/Law Enforcement Officer	1	3
Fire Chief [a]	1	3
Police technician/community service officer [c]	1	3
Years of Total Service*		
1-2 years	4	14
3-5 years	2	7
6-10 years	4	14

11-15 years	2	7
16-20 years	3	10
Longer than 20 years	14	48
Knowledge of Substance Use*		
A little	3	10
Moderate	13	45
Moderate-to-a lot	5	17
A lot	8	28
Most Common Opioid Encountered**		
Heroin	16	59
Fentanyl	5	19
Prescription medications	9	33
MAT Medications	2	7
Most Common Circumstances Encountered		
Fatal and Non-fatal overdoses	22	73
Repeat patients	16	53
Combativeness	9	30
Illegal Selling	3	10
Economically under-resourced patients	3	10

Notes. $N = 30$. * = One participant elected to not answer the demographic question; ** = Three people elected to not answer the demographic question.
EMT = emergency medical technician. MAT = medication assisted treatments.
[a] Reflects the firefighter positions.
[b] Reflects the paramedic positions.
[c] Reflects the law enforcement position.

Measures

Interview Guide

A semi-structured qualitative interview guide was developed in consultation with psychologists, counselors, and first responders that explores the impact of the opioid epidemic on law enforcement officers, firefighters, and paramedics. The interview questions were constructed ahead of time to ensure that there was some structure to the interviews and to keep the conversation focused on the research questions. Furthermore, the interview guide was piloted with personnel from outside the participant sample to refine the questions for flow and understandability. Open-ended questions were used to create a free-flowing conversation

between the primary investigator and the participant, hence increasing the depth of the responses. The interview guide includes seven primary questions and 30 follow-up probe questions (Appendix A). The length of the interviews varied between 30 minutes to one hour.

Audio Recording. A digital audio tape recorder was used to record all of the interview questions and participant responses. All recordings were transcribed to allow the primary investigator to code noticeable themes in the participants' responses. In addition, direct quotes from the audio recordings were utilized in the results section of the manuscript to support the study's findings. Digital recordings were permanently destroyed upon completion of all transcriptions and analyses. Identifying information was deleted from all transcripts.

Demographic Questionnaire

Upon completing the interview, a demographic questionnaire was provided and completed by each participant (Appendix B). The demographic questionnaire allowed the primary investigator the opportunity to become familiar with the characteristics of the participants. The questionnaire had a total of 22 questions that included fill-in-the-blank and multiple choice. Questions ranged from participants' age to length of service in their current ranking. Examples of some of the questions include, "How many people are employed in your department" and "Approximately how many opioid-related incidents have you been involved in to date?" The data collected from the demographic questionnaire was reported in aggregate. Furthermore, the last question of the demographic questionnaire asked participants to disclose their email if they would like to receive a final report of the results. This question was not attached to the other demographic question in an effort to uphold confidentiality.

Procedures

Recruitment

Sampling was purposeful and involved selecting potential participants according to their experiences and knowledge within the area of research interest (Palinkas et al., 2015; Cresswell & Plano Clark, 2011). Purposeful sampling was determined by only including first responders who met all of the following criteria: (1) Are you at least 18 years of age; (2) Can you understand and speak English; (3) Do you currently reside in the United States; (4) Do you hold the position of a police officer, firefighter, or paramedic; (5) Do you work as a first responder in Tennessee; and (6) Have you responded to at least one opioid-related call in the past? In keeping with purposeful sampling, it allowed for detailed insights into this population and generated credible data.

Two methods of recruitment were employed. The first was by the primary investigator and research assistants sending emails to chiefs and captains of various stations explaining the purpose of the study, informing them of the eligibility criteria, and asking them if they would be interested in participating, as well as asking them to pass the information along to their employees (Appendix C). The second method was by the primary investigator and research assistants calling the various stations and saying the latter information to the first responder who answered the telephone. Participant recruitment continued until the targeted sample size of 30 was reached.

Interview Day

Pre-COVID. Face-to-face interviews were conducted over a three-month period at the beginning of 2020. One interviewer (i.e., the primary investigator) conducted all interviews in an effort to maintain consistency. Interviews took place at the participant's station, with

consideration to privacy required (i.e., private room at the station). Each interview began with an appreciation for the first responder's participation, a brief overview of the research, and a review of the eligibility requirements (Appendix D). The interviewer verbally explained the information in the consent form and then allowed the participant as much time as they needed to read through it, ask additional questions, and sign the document. Although already stated in the consent form, the interviewer reiterated to the participant to refrain from disclosing identifiable information (e.g., names, addresses, dates, etc.) during the audio recording in an effort to uphold confidentiality. In addition, they were informed about the voluntary and confidential nature of the study.

Upon the participant signing the consent form, the interviewer turned on the audio recorder and began asking questions from the interview guide. After all interview questions were asked, the interviewer had the participant complete the demographic questionnaire. Once everything was completed, the interviewer thanked the participant for their time and provided them with a list of first responder referrals (Appendix E). The referrals were provided to make participants aware of local resources that give them a way to further discuss stressors related to their jobs.

During COVID. The onset of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) outbreak resulted in face-to-face interviews (n = 6) transitioning to telephone interviews (n = 24) in an effort to maintain participant and interviewer safety. Given this, the following describes how the procedures were modified.

Telephone-based interviews were conducted over an eight-month period in 2020. The same interviewer continued to conduct the interviews to maintain consistency. Prior to the scheduled telephone interview, participants completed the consent form through RedCap, a web-

based survey platform, where participants were informed about the study, the eligibility requirements, and the voluntary and confidential nature of the study. After electronically signing the consent, the interviewer called the participants at their scheduled interview time. The procedures prior to beginning the interview questions remained the same (i.e., thanked the participant for their time, reviewed the consent form, and asked the participant to refrain from disclosing confidential information).

Following the review of the consent form and answering any questions, the interviewer put the participant on speaker phone, turned on the audio recorder, and began asking questions from the interview guide. After all interview questions were asked, the interviewer thanked the participant for their time and informed them that they would be sending a follow-up email containing a link to the online demographic questionnaire, which was completed through RedCap. After the participant submitted their demographic responses, they were redirected to an online document containing the same referrals that were provided in the in-person interviews.

Statistical Analyses

Inductive Analysis

This study was exploratory in nature, implying that the primary investigator was looking at a phenomenon that has yet to be explored, and had no preconceived assumptions about the data. The data was analyzed following the guidelines of a general inductive approach (Thomas, 2006). When implementing an inductive approach, the objective is to allow the research findings to develop, without the restrictions of other methodologies (Thomas, 2006). There are three primary purposes for utilizing this approach: (1) to condense the extensive raw data into categories; (2) to establish links between the research objectives and the categories derived from

the raw data; and (3) to develop a theory based on the underlying experiences which are outlined by the categories (Thomas, 2006).

Transcriptions

Prior to the data being analyzed, the primary investigator and research assistants transcribed all interviews. The process of transcribing allowed the primary investigator to become acquainted with the data (Reissman, 1993). The transcriptions were formatted in a common format to aid in easier reading, and any identifying information was deleted from them. Once the text was prepared, the raw data was read in detail a couple of times so the primary investigator could become familiar with the contents. By doing this, the primary investigator gained an understanding of the themes in the transcribed interviews.

Coding

Trustworthiness. To increase provisions of trustworthiness, independent parallel coding was utilized (Thomas, 2006). Independent parallel coding involves an initial coder and a second coder (Behar-Horenstein, slide 20). The first coder analyzed and developed a set of categories (i.e., codes) that established the initial results, while the second coder was given the research objectives, raw data, and created a second set of categories (Behar-Horenstein, slide 20). Afterwards, the suggested categories were compared to promote consensus and increase inter-rater reliability (Behar-Horenstein, slide 20). Categories with sufficient overlap were combined, while categories with insufficient overlap were further discussed and re-analyzed (Behar-Horenstein, slide 20). Within the current study, the primary investigator conducted parallel coding with a trained research assistant (E.B.). In addition, a third coder was consulted for the following reasons: (1) assisted with mitigating different perspectives (n = 2 codes); (2) assisted in ensuring consistency of categorization, thus minimizing measurement error; (3) checked the

finalized categories that were developed against the data in an effort to decrease subjectivity. Overall, inter-rater reliability was assessed using Cohen's kappa coefficient, and it was found that the degree of agreement was moderate (83%, $k = .57$; Landis & Koch, 1997).

Analyses. There were approximately 27 hours of interviews across the face-to-face and telephone-based interviews, providing substantial data to analyze. The data were analyzed using the software NVivo 12 (QSR International, 2020), which helped categorize themes throughout the raw data and assign them to different codes. In vivo coding (i.e., actual spoken words or phrases from the participant; Manning, 2017) were utilized to create the various codes. Codes that had the same meaning were ultimately combined, while codes lacking in references were tossed. The results section is supported by the developed themes and examples from the data, ultimately creating an overarching theory.

Ethical Considerations

All of the participants were treated in accordance with the ethical guidelines of the American Psychological Association (APA) and East Tennessee State University Institutional Review Board (IRB). The informed consent was reviewed by each participant to ensure they were knowledgeable in regard to the purpose of the research. Confidentiality, the limits of confidentiality, participant rights, and the potential effects of participating were verbally reviewed with each participant during the consent process. There was minimal or less than minimal risks for participating in the study. The risks associated included but were not limited to potential exposure to upsetting memories and negative introspection while reflecting on critical incidents that the participant had responded to. To help decrease the risk for possible discomfort, participants were informed that they could skip any questions or withdraw their consent to take part in the study at any point in time with no consequence. At the end of the interview, the

primary investigator also provided the participants with the list of first responder referrals (please refer back to the procedures section detailing the interview day).

Given that the research involved semi-structured interviews, indirectly identifiable information (i.e., when fragments of information can be combined together to potentially identify a participant; United States Department of Education, n.d.) may be disclosed by the participant, posing a risk to confidentiality. In addition, participants were asked to refrain from providing any identifiable information (e.g., names, dates, addresses, etc.) during the interview to reduce this risk. If identifiable information was disclosed during the interview, the primary investigator and research assistants did not include excluded it from the transcriptions. Although the primary investigator and research assistants took these precautions, there may be an individual (e.g., the supervisor of the first responder) who reads the manuscript and pieces together the characteristics of the responses from a participant and identifies them. Although this is highly unlikely, it cannot be completely ruled out.

Furthermore, direct identifiers (i.e., disclosed information that directly identifies a participant, such as participant names and emails; Stanford Medicine, n.d.), were not associated with participant data. Once transcriptions and analyses were completed, the audio recordings were permanently deleted, and only de-identified transcriptions were retained in a password protected file on the university's OneDrive. Copies of the records from this study are to be stored on the OneDrive for at least six years following the completion of the study.

Chapter 4. Results

The responses to the semi-structured interview questions revealed eight themes that were present across participants. Themes were chosen in part due to the frequency with which they occurred across all interviews. Four primary themes related to the research questions emerged including (1) mental health symptoms, (2) coping behaviors, (3) available resources, (4) barriers to accessing resources, and (5) recommendations for what is needed. In addition, three secondary themes emerged including (6) hardest circumstances, (7) discrepant thoughts and feelings, and (8) perception of role in reducing the impact of the epidemic. The preceding themes were further parsed apart into subthemes. Please refer to Table 2 for the emerged themes and their subthemes.

Table 2

Recurring Themes and Subthemes

Recurring Themes	Subthemes
Theme 1: Mental Health Symptoms	1.1 Posttraumatic Stress Disorder Symptoms
	1.1a Intrusion
	1.1b Avoidance
	1.1c Negative Cognition and Mood
	1.1d Hyperarousal
	1.2 Secondary Traumatic Stress Symptoms
	1.2a Feeling Stigmatized
	1.2b Decreased Empathy
	1.2c Diminished Professional Self-Efficacy
	1.2d Empathetic Overinvolvement
	1.2e Moral Distress
	1.3 Other Mental Health Symptoms
Theme 2: Coping Behaviors	2.1 Healthy Coping Behaviors
	2.1a Leisure Activities
	2.1b Social Support
	2.1c Religion
	2.2 Unhealthy Coping Behaviors
	2.2a Avoidance
	2.2b Dark Humor
	2.2c Substance Use

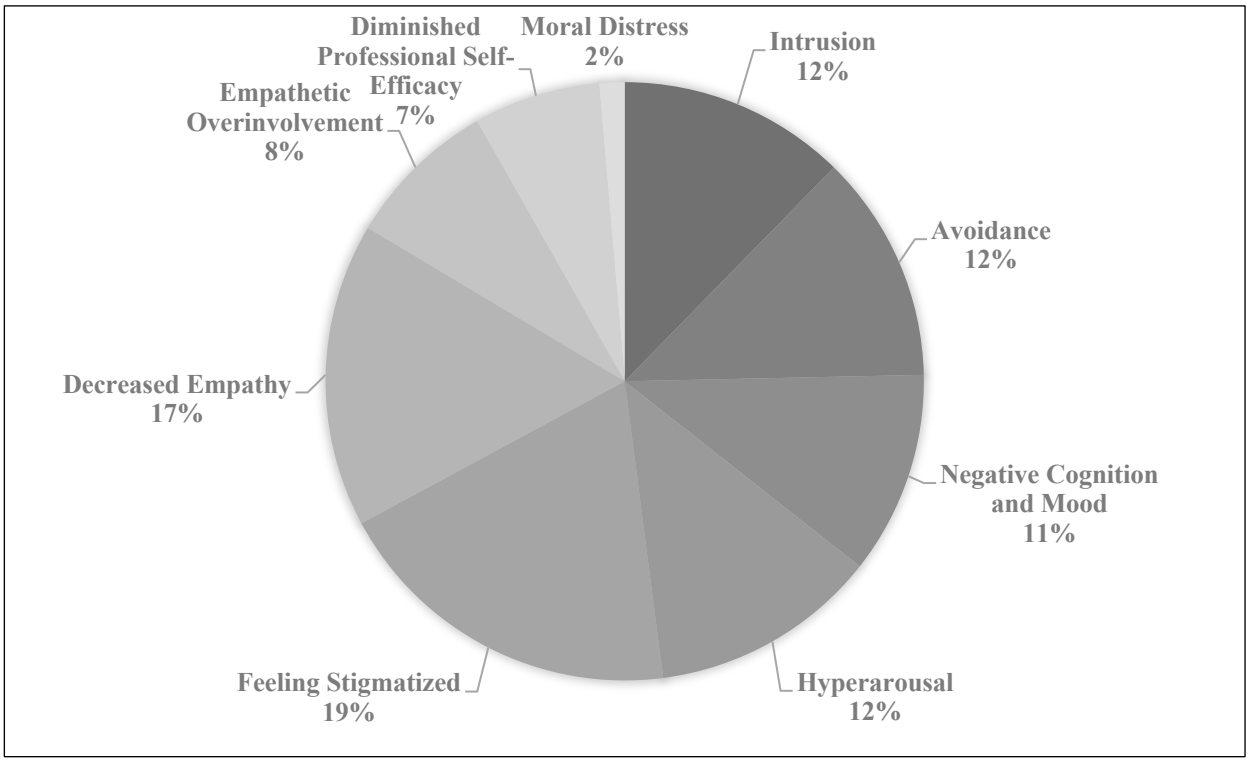
Theme 3: Available Resources	
Theme 4: Barriers to Accessing Resources	4.1 Cost
	4.2 Lack of Structural Support
	4.3 Perceived Stigma
Theme 5: Recommendations for What is Needed	
Theme 6: Hardest Circumstances	6.1 Children
	6.2 Family Members
	6.3 Other
Theme 7: Discrepant Thoughts and Feelings	7.1 Frustration
	7.2 Overwhelmed
	7.3 Habituation
	7.4 Stigma Towards Patients
	7.5 Empathy
Theme 8: Perception of Role in Reducing the Impact of the Epidemic	8.1 Reactive Role
	8.2 Proactive Role

Theme 1: Mental Health Symptoms

The first theme that appeared several times throughout the participant interviews was *mental health symptoms*. This theme answered the first research question and is related to the participants and their colleague's mental health in regard to working in one of the highest opioid-using states. The semi-structured interview was not constructed to determine whether participants met formal diagnostic criteria for any particular mental health disorder. However, participants often self-identified symptoms of PTSD, secondary traumatic stress (STS), and other mental health-related symptoms, which developed the following three subthemes. Please refer to Figure 1 for frequency in which participants exhibited mental health-related symptoms.

Figure 1

Participant Posttraumatic Stress Disorder and Secondary Traumatic Stress Symptoms



Note. The figure demonstrates the PTSD and STS symptoms first responder participants have developed as a result of repeatedly responding to opioid-related incidents.

Subtheme 1.1: Posttraumatic Stress Disorder Symptoms

The first subtheme that appeared across interviews was PTSD symptoms. These symptoms included intrusion (n = 9; i.e., the traumatic event(s) are re-experienced through distressing memories, nightmare, flashbacks, psychological distress, or physical reactivity), avoidance (n = 9; i.e., avoidance of trauma-related stimuli such as thoughts or external reminders), negative cognition and mood (n = 8; i.e., negative thoughts or feelings that began or worsened after the traumatic event(s), such as negative affect, self-blame, or exaggerated negative beliefs about oneself or the world), and hyperarousal (n = 9; i.e., trauma-related reactivity that began or worsened after the traumatic event(s), such as irritability, risk behavior,

or hypervigilance; Diagnostic and Statistical Manual or Mental Disorders, 5th Edition [DSM-5], 2013).

Sixty-three percent of first responders reported either they themselves or a colleague endorsed at least one symptom (*n* = 16), 23% reported at least two symptoms (*n* = 7), 7% reported at least three symptoms (*n* = 2), and 7% reported at least four symptoms (*n* = 2). Furthermore, several participants disclosed how these symptoms have caused occupational and familial impairment.

Intrusion. Participant 5: "I don't sleep good anymore because when you get that bad call it tends to linger in your mind, you know. You care when you find someone dead. You can't erase that. You can't go back, and it weighs on your mind how this happened, why he went through it, and how bad his family members hurt. And so, sleep deprivation gets you on the physical and mental side."

Participant 21: "...if you watched a horror film every day, every day, every day, you start to see the horror film when you are not watching it."

Avoidance. Participant 4: "With this job, you tend to compartmentalize a lot of things."

Participant 13: "I'm sure you've been told that too, that were very good at hiding what's wrong with us; and very good at not dealing with what's bothering us."

Negative Cognition and Mood. Participant 25: "Of course, I'm still blaming myself, cause you want to be able to be the hero. And that ain't always possible."

Participant 28: "It's like a domino effect; if they die that not only affects their family but it affects us emotionally because at times we feel like 'Is there anything else I could've done?'"

Hyperarousal. Participant 2: “I have gotten very angry at my family for very silly little things, and I will just explode into rage. I will see red, and I have never hurt anybody, but it is just uncontrollable anger.”

Participant 28: “...at times it’s so stressful I might blow a gasket so to speak. I’ll get angry and have to take a step back...”

Subtheme 1.2: Secondary Traumatic Stress Symptoms

The second subtheme that emerged across interviews was secondary traumatic stress symptoms (STS). Sprang and colleagues (2019) state that STS parallels PTSD; however, it also includes feeling stigmatized (*n* = 14; i.e., an undesirable stereotype), decreased empathy (*n* = 12; i.e., a decrease in one’s ability to recognize and identify with another individual’s experience; Hodges & Meyers, 2007), empathetic overinvolvement (*n* = 6; emotional involvement that can take on several forms such as behaving intrusively, overprotective, or self-sacrificing beyond what is normal for the job; Singh et al., 2013), diminished professional self-efficacy (*n* = 5; i.e., a decrease is one’s belief in their own ability to execute an occupational task at a specific performance requirement; Cherniss, 1993), and moral distress (*n* = 1; i.e., an emotional state that arises due to being tasked with something that is not the ethically correct action; Papazoglou & Chopko, 2017). These additional symptoms were also found throughout participant responses.

Feeling Stigmatized. Participant 4: “A lot of times in our position, law enforcement, we are not looked upon as, I guess, maybe wanting to help these people, but by us trying to determine who their suppliers are, prevents them from being able to maintain their addiction.”

Participant 25: “A lot of cops don't wanna tell people their problems though. Cause they're afraid they'll get branded as a rubber gun squad.”

Decreased Empathy. Participant 5: “They’ll come a point in time when you will see so much stuff that you’re gonna lose your compassion.”

Participant 13: “If a person presents that they are a drug user or part of that culture, there’s some preconceptions there and some of that can change the way some paramedics and some EMTs treat their patient.”

Diminished Professional Self-Efficacy. Participant 10: “We just kind of get to a point where we're like ‘Is what I'm saying and what I'm doing for you, ever going to make a difference in your life?’"

Participant 29: “I guess, you just get in a routine of doing stuff, you don’t really think it makes a difference every day.”

Empathetic Overinvolvement. Participant 4: “...you feel like you, personally, need to shoulder the problem yourself.”

Participant 18: “Well, this job can quickly tear you apart especially if you take it all in and then feel a lot of responsibility for what goes on.”

Moral Distress. Participant 29: “After a little while, it kind of did bother me, like ‘Is that my fault,’ you know. I took him to jail but I did what I was supposed to do. Because he had a warrant, I took him to jail. In the back of your mind, you’re like ‘Well, if I let him go, maybe he would still be alive.’"

Subtheme 1.3: Other Mental Health Symptoms

The third subtheme that emerged across interviews were *other mental health* symptoms that were not necessarily due to responding to opioid-related incidents but the compounding factors of the job overall. These included suicidal ideation (n = 6), completed suicides (n = 5), anxiety (n = 5), and depression (n = 2). These mental health symptoms are important to keep in

mind, as they may exacerbate the PTSD and STS symptoms that first responders face following opioid-related incidents.

Theme 2: Coping Behaviors

The second theme that appeared several times throughout the participant interviews was *coping behaviors*. This theme answered the second research question and is related to the participants' typical coping behaviors following an opioid-related incident. Participant responses involved adaptive and maladaptive coping techniques.

Subtheme 2.1: Adaptive Coping Techniques

The subtheme of adaptive coping techniques revealed that participants and/or their colleagues (n = 30) engage in leisure activities (e.g., outdoor activities, physical exercise, and spending quality time with the family), religion, and social support (e.g., discussing calls with colleagues and utilizing mental health resources) to work through the stress of opioid-related incidents.

Leisure Activities. Participant 12: "I'm an avid outdoorsman. On my days off, I try and enjoy the great outdoors and that's my therapy."

Participant 24: "But I try to just take some me time and if it's camping or hunting or hanging out with friends or whatever it is, it's just nice to relax and have a good time."

Religion. Participant 9: "We start off meetings, staff training, and everything with prayer."

Participant 25: "I pray several times during the day. And you'd be surprised, a prayer don't always mean getting down on your knees with your hands like this (gestures)."

Social Support. Participant 1: "...nine times out of ten, the true emotions come out at the kitchen table when they're sitting around waiting for the next alarm."

Participant 4: “I’ve got a great wife and family, who are open to let me discuss things and talk about some of the experiences that I’ve had.”

Subtheme 2.2: Maladaptive Coping Techniques

The subtheme of maladaptive coping techniques revealed that participants and/or their colleagues (n = 25) engage in licit and illicit substance use (i.e., problematic drinking, nicotine use, and use of illicit substances), dark humor, and avoidance behaviors (i.e., please refer to Subtheme 1.1) in an effort to work through the stress of opioid-related incidents. Dark humor was included in this subtheme as the participants disclosed using it as a way to cover their symptoms rather than work through them.

Substance Use. Participant 10: “I know there's a lot of firefighters and EMS personnel that'll come home and sleep or go to a second job, and then come back home that night and pound down a bottle of liquor or something.”

Participant 29: “It’s just a lot of people abuse certain things so extensively, and they use coping mechanisms like alcohol. Some people lead to drugs.”

Dark Humor. Participant 18: “There are the people you wake up all the time from narcotic overdoses and it’s kinda the black humor joke in the EMS is that ‘Oh, I don’t have to worry about it because someone will come wake me up with Narcan.’"

Participant 27: “...but I think it’s just you develop a mindset to help protect yourself, and that’s why a lot of first responders are notorious for dark humor and they use it as a means to cope with the stress of the situation.”

Theme 3: Available Resources

The third theme that appeared throughout the interviews was *available resources*. This theme answered the third research question and is related to the available resources provided to first responders following an opioid-related incident. All 30 participants reported having at least one available resource, including critical incident stress debriefings, kitchen table debriefings, chaplains, emergency helplines, peer support groups, counselors and therapists, and their employee assistance program (EAP), which can be utilized to locate additional resources when permitted. However, there was considerable variation regarding participants' perspectives on whether these resources are effective.

> Participant 6: "I would say they are effective."
>
> Participant 13: "I'm not a fan of the formal debriefings that we have around here. The CISD is the traditional, I'm sure you've heard all about it. It's very cookie-cutter. It creates a lot of exposure to secondary issues and creates traumatic exposure to people who may have generally not been exposed to those traumas. I don't like it."

Theme 4: Barriers to Accessing Resources

The fourth theme that emerged from the data was *barriers to accessing resources*. In addition to the variability in the effectiveness of the available resources, participants also identified cost (n = 7), lack of structural support (n = 7), and perceived stigma (n = 17) as barriers to accessing the available resources.

Subtheme 4.1: Cost

This subtheme developed as a result of participants disclosing that their department, city, and/or state does not have the funding to support the implementation of new resources into the department.

Participant 11: “What’s the cost? Who’s going to cover it? That seems to always be what comes up in city and county departments.”

Participant 18: “It’s good but it could be a hell of a lot better. But it costs time and money, and this is an industry that doesn't have a lot of either.”

Subtheme 4.2: Lack of Structural Support

This subtheme emerged as participants reported an absence of systemic support for mental well-being within the first responder organization.

Participant 2: “We were trying to get a program for us on suicide, depression, and some extra help for our mental state and we approached them, and they told us that we didn’t need that.”

Participant 13: “Once you cross the bridge into administration and city leadership, they don’t care a bit.”

Subtheme 4.3: Perceived Stigma

This subtheme developed as a result of participants expressing that their profession holds a culture of stoicism, hindering one’s ability to seek mental health support and services. Participants often disclosed that there is a fear that seeking support would impact their career negatively, as well as result in judgmental attitudes from colleagues.

Participant 8: “I think the only barrier is the employee taking that first initial step. And I think that first initial step is a hard one because, particularly, officers do not want to be seen as weak.”

Participant 20: “I would say for most firefighters, the biggest barrier is self-pride.”

Theme 5: Recommendations for What is Needed

Although all first responder participants indicated that they received technical training (i.e., medical training, such as providing basic life support) for dealing with opioid-related incidents and generally regarded the training as sufficient, they reported that there is a need to better prepare first responders for the psychological aspects of responding to opioid-related calls. From this, the theme of *recommendations for what is needed* emerged, addressing the fourth research question. Participants (n = 18) recurringly stated the need for additional resources and trainings and suggested ways to implement them in their current departmental system. Some of the suggestions included pre-incident and post-incident support such as (1) implementing mandatory in-person trainings that cover different mental health symptoms and how to cope with them; (2) enhancing the accessibility of resources, such as listing the mental health numbers of the EAP program within their station; (3) offering therapeutic services with a counselor or clinician; (4) developing peer support groups within the department; (5) increasing departmental mental health check-ins that go beyond debriefings; and (6) being taken off shift for a couple of hours or days following a difficult call. Some examples include:

> Participant 5: "So the sad part of it is, we probably need more counseling and more clinicians to help cope with what we've dealt with. You know, if you run a bunch of calls for overdoses and got there too late, not seeing anybody survive, that's gonna start weighing on you."
>
> Participant 13: "...but you look at Phoenix, New York, Los Angeles--major departments like that--and the biggest positive thing that they've done for mental health for their membership is peer support."

Participant 28: “As far as being improved, there needs to be a follow-up. Instead of doing one session, they need to follow-up better. Because that day, they could be fine but like we said earlier the next day, something could trigger it.”

Theme 6: Hardest Circumstances

In addition to the primary themes, participants also disclosed secondary themes, the first being *hardest circumstances*. Of the 23 participants who responded to the question of “What circumstances about substance use related calls have affected you the most,” participants disclosed that seeing the repercussions on the children (n = 8), family members (n = 8), or both (n = 1) as the hardest circumstances of dealing with opioid-related incidents. Six additional participants disclosed various responses to what the hardest circumstances are, including dealing with repeat patients, other first responders not having the same compassion level, and responding to individuals within their hometown.

Subtheme 6.1: Children

In several situations, first responders attend to opioid-related incidents where they observe children witnessing the overdose, as well as the revival attempt. Participants often revealed that seeing the repercussions on children and attending to them is the hardest element of opioid-related calls.

Participant 4: “The kids don’t understand. Um, that’s always the most difficult. Having to sit and listen to a parent try to explain to a child, as you are taking mom or daddy away in cuffs, why they are having to go with us is a big issue for me.”

Participant 13: “Um, involving children are always a big deal. So, whenever we get either parent overdosed, and the children are still in the home or in the car, that I think is the

biggest issue that we see as a first responder as far as emotional toll because there's that child. It's one thing for it to be an adult and they've made choices one way or the other."

Subtheme 6.2: Family Members

In addition to assisting the children in the aftermath of an opioid-related incident, participants frequently have to deal with the family members who may have witnessed the overdose and the revival attempt as well. In such instances, participants try to offer social support and help with anything that the family requests. However, they feel that this has caused a shift in their job duties and they feel ill-equipped.

Participant 6: "So, it's not really having to respond that's difficult, it's more so navigating and explaining to the family."

Participant 13: "It's dealing with the family or dealing with the loved ones, because at the end of the day we know how to deal with a cardiac arrest...it's that notification to family that you can't do anything else. You're stopping resuscitation efforts or there's no point in starting resuscitation efforts...They overdosed four or five hours ago; there's nothing we can do. There's nothing medical science can do; we can't change anything. We are the ones that tell them that. I think that bothers people more so than just the running the opioids calls and giving the Narcan ..."

Subtheme 6.3: Other

Participants disclosed that repeat patients, responding to patients in their hometown, informants starting to use opioids when working a case, and a lack of coordination between first responders and systems of care are additional circumstances that are the hardest to deal with during opioid-related incidents.

Participant 5: “So, you can do everything right, but the person you pass them off to, may not be mentally ready right now to take care of that person. They might not be on the same compassion level. When you get to the hospital, you’ve tried to build a relationship with this lady and they just say, ‘Well, she’s just a drug addict.’ You know, it’s just like ‘Well, I hate to know you’re an asshole, but you’ve encouraged me to not be one and to stay positive.’”

Participant 16: “Well, as a narcotic agent, we use people who have gotten in trouble. That want to, you know, turn a new leaf...You don’t operate with people who use drugs. They have to be clean, and sometimes they fall off the wagon. You know, you might be working with somebody and they’re doing great, and then all of a sudden you don’t hear from them for two weeks”

Participant 29: “I see everything that’s going on in my hometown and it’s really sad...it’s just not a good area anymore because of the drug pandemic.”

Theme 7: Discrepant Thoughts and Feelings

Another secondary theme that was derived from the participant data was *discrepant thoughts and feelings*. Throughout the interviews, participants disclosed their perspectives of the opioid epidemic, as well as how it has affected them. The feelings that recurringly arose throughout the transcripts were empathy (n = 14), frustration (n = 10), overwhelmingness (n = 16), and habituation (n = 9). In addition to these feelings, participants (n = 19) often held stigmatizing thoughts and perceptions towards their patients.

Subtheme 7.1: Frustration

Participants expressed feelings of frustration with responding to opioid-related incidents. This frustration particularly stemmed from having to respond to repeat patients, the increased call volume, and the aggressiveness that may manifest after providing a patient with Narcan®.

> Participant 19: "I try to keep my opinions to myself but at some point, when patients are cussing at you and yelling at you because you took away their high, it's hard to keep your mouth shut sometimes."
>
> Participant 27: "And I'm not saying that all officers get callous to these calls of service, but they do become frustrated whenever they start seeing repeat incidents."

Subtheme 7.2: Overwhelmed

Along with feelings of frustration, participants reported feeling increasingly overwhelmed and burnt out, as a result of the repeated exposure and shift in duties.

> Participant 10: "We're getting burnt out dealing with the same person for doing the same thing."
>
> Participant 15: "I believe I told you the first time I talked to you, that if you, years ago you would've told me I'd have to have my officers trained for this and you know continue to provide it for them, that would have been just so odd to me. Because were not medical professionals, so seeing it evolve into this it's just a sad time in the country."
>
> Participant 28: "It affects your emotions and feelings. A lot of people don't understand that. We are the first ones there. The first responders are the first ones dealing with it and it affects you."

Subtheme 7.3: Habituation

The subtheme of habituation indicates that participants are experiencing a diminished emotional response to frequently responding to opioid-related incidents (American Psychological Association, n.d.).

> Participant 19: "You know, running these calls day in and day out...I don't get affected by the overdose calls."
>
> Participant 29: "You know, you've seen so much, it just becomes the norm to you."

Subtheme 7.4: Stigma Towards Patients

As a result of the increased call volume and responding to repeat patients, first responder's cynicism is increasing, further perpetuating the stigma patients face. This was evidenced by participants use of stigmatizing language (i.e., 80% [n = 24] of participants engaged in stigmatizing language, which included words such as "addict," "abuser," "pill-head") and perceptions. Several participants viewed their patient's behaviors and decisions as a result of a moral weakness and flawed character, rather than a result of a mental health disorder.

> Participant 9: "I guess it's a personal thing I have, is what a waste, a lack of productivity in society...you get some money, or you went to this person, went to work, got some money. This is what you do with it?"
>
> Participant 11: "Well, after fifteen years, when it comes to an adult, I'm pretty callous toward it. I mean they've put themselves there in that situation."
>
> Participant 17: "They'll lie, steal, cheat. Like I said, there's a reason no one wants to come see them when you put them in jail."

Subtheme 7.5: Empathy

Although participants are experiencing negative thoughts, emotions, and cognitions resulting from responding to opioid-related incidents, some of them maintain empathetic views towards their patients and remind themselves of why they are in the profession.

> Participant 6: "We got to treat them whether it's our 20th, 30th, or 100th time out there. We have to treat them like it's our first time out there and offer them help. Whether they want to take the help or not is their personal choice. We have to live with that and can't let it affect us because somebody doesn't want to get help and that's what our job is; to help people."
>
> Participant 12: "Number one, you never judge anybody. It's real easy to say 'Why's someone a drug addict? Why they are using drugs? They should know better. They know it's wrong.' But you never know what shoes someone's walked through. You never know what has transpired in their path to addiction."

Theme 8: Perception of Role in Reducing the Impact of the Epidemic.

The final theme that emerged from the data was *perception of role in reducing the impact of the epidemic*. When participants were asked "how do you see yourself and your team playing a role in reducing the opioid epidemic," 93% (n = 28) of them indicated reactive measures (i.e., offering medical aid and resources after an opioid-related incident has occurred) rather than proactive measures (i.e., working towards reducing opioid-related incidents before they have had a chance to occur).

Subtheme 8.1: Reactive Role

Participants often reported feeling that there is nothing they can do on their end to reduce the number of opioid-related incidents they have to attend to. They also indicated that the hospital staff are typically the individuals to provide the patients with resources.

> Participant 18: "So, we see the worst aspect of it, but we're also the most powerless to do anything, you know...So, we see the worst aspect of it, but we're also the most powerless to do anything, you know."
>
> Participant 20: "That's tough, because a lot of what we do is we respond when some things happened or happening. As far as our department, what we are doing to help reduce it, I can't really think of anything.
>
> Participant 24: "But as far as, lessening the problem, I don't know if we do. We are there to help if a problem arises, but I don't think that we do anything to prevent it necessarily. That sounds bad but there's just not a whole lot we can do in that aspect."

Subtheme 8.2: Proactive Role

Although the majority of participants expressed that they are powerless in reducing the opioid epidemic, some participants disclosed proactive measures they have put in place, such as community outreach and working towards intercepting the drugs prior to them reaching the patients.

> Participant 12: "I've been fortunate enough to speak to large groups and got to speak with recovery programs and large groups at recovery programs."
>
> Participant 27: "There are things that we could do as law-enforcement agents from a proactive standpoint that we do try to do. That is criminal intervention measures. Um, try

to do safety enforcement, to intercept these drugs when they are in transit from point A to point B, but that is only scratching the surface, and this is a multi-layer process."

Participant 28: "We have had several that their family was involved in opioid stuff and we've brought them in as junior members or some adult firefighters to get them away from that and show that there's more to life than just that."

Please refer to Table 3 for additional supporting quotes for all themes and subthemes.

Table 3

Additional Quotes to Support the Themes and Subthemes

Themes	Quotes
Mental Health Symptoms	
1.1a: Intrusion	"I can close my eyes and I can see the event happening over again." "They're gonna relive that every time they see a drug overdose. You're gonna see that three-year old kid that doesn't have a mother anymore." "There are some people that can see, hear, smell, and all the other sensory things and it will never even phase them or have an effect on them. You have other individuals that are not so much that way." "There's a few calls that I've run through my life that, you know, certain things will trigger. Like driving on certain roads and stuff that will trigger that call where I can remember the smells from that day, what I did, what the scene looked like."
1.1b: Avoidance	"A lot of officers become withdrawn from their job and want to be away from everybody and all their issues." "My first wife did not understand when I'd come home and not talk. I just did not want to go through things I saw and have to explain them over again, I just wanted to go to bed." "You know, to this day I don't talk about it much. It kinda makes me wanna cry."
1.1c: Negative Cognition and Mood	"You have a hard time going to work every day and knowing that you have a high percent chance of getting a hold of something dangerous or die today." "A lot of officers become withdrawn from their job and want to be away from everybody and all their issues." "I get really callous when I start talking about it... I have seen the worst sides of people. That's the problem." "The world is just sad place in general sometimes. A lot of times you see that it was one wrong decision, and the next thing you know they keep making wrong decisions and you see a lot of wasted life. What could this person have been? What could they have given to society? But this is what they've chosen to do with their life."
1.1d: Hyperarousal	"...any little incident that pops up, you blow up." "I had trouble sleeping for a couple days after that." "A lot of people have these racing thoughts and stuff going through their head 24/7 that they can't control it."

1.2a: Feeling Stigmatized	"I think there is a fear...I think they know that there is kind of a stigma of kind of just having to handle it like men are expected to just handle it." "...we're afraid to talk because we're afraid it makes us weaker..." "We all want to seem like we are the baddest of the bad, biggest of the big. We walk the walk and talk the talk. But a lot of people are embarrassed to admit that they went and saw a therapist." "I think part of the problem with emergency services is sharing that or exposing that something bothered you, cause the mentality is 'What do you mean something bothered you?'"
1.2b: Decreased Empathy	"Some of them are repeat offenders and the well of goodness tends to run dry on some of those." "We don't care and it's just kind of the syndrome of the way we have to put ourselves." "When I was a younger officer, I hate to say it, I cared too much." "I don't have a sympathy part anymore." "Sometimes it can be difficult to have compassion."
1.2c: Diminished Professional Self-Efficacy	"And he said, "Well, I'm just going to be honest with you, you can't get the drugs off the street because they're everywhere. You ain't got the cops to get the drugs off the street." And that's what makes it sad because I know he was being honest with me and it wasn't the answer I wanted, but he's right the drugs are...It doesn't matter what race you are, or where you are, they're in every neighborhood. They're staying." "It seems like when you fix one part of it, the other part…Something else always steps up in its place."
1.2d: Empathetic Overinvolvement	"I've got to go out of my way to help every individual I can now, and I make that my mission." "If they don't want help, then it just kind of makes you feel pretty upset." "So, I think I've just kind of been overbearing in situations with people. I just want them to be careful, you know." "I guess I just get caught up in the wrong things. Doing favors for people and they get themselves in trouble and they can't get themselves out of trouble."
1.3: Other Mental Health Symptoms	"Well, I have chemical depression." "I think that we've all had to think about suicide on some level. You know, it's like 'If I kill myself, how's that gonna make things easier?'" "I know a few years ago we had an incident where one of our officers did kill themself." "...we have had five that either myself or one of my peers have talked to that expressed current suicidal ideation." "I had the nightmares, the stress, the anxiety of not the actual call, but just the amount of it." "When you talk about anxiety, you can get it in this job, that's for sure."

	"He went home and stuck his sheriff's revolver in his mouth, and I don't know if he did the roof of the mouth or the back of his head, but he shot himself."
Coping Behaviors	
2.1: Adaptive Coping Techniques	"...I use the emergency helpline." "I am very active in hunting and fishing." "I have a therapist I talk to on a fairly regular basis." "I can't speak for everybody, but I do believe in God and I do believe we're all gonna be judged one day whether no one believes it or not. That's just how I feel, and if I get to a point where I don't understand something, I'll ask Him."
2.2: Maladaptive Coping Techniques	"Well, one couldn't keep clean from his pill addiction. When they did a random drug test on him, they found out he was on meds..." "But I've noticed that there are some people when they're usually stressed out, they're hitting a cigarette or a vape when they're wound up." "We hide behind jokes and we hide behind just different things to cope..." "I think it's just you develop a mindset to help protect yourself, and that's why a lot of first responders are notorious for dark humor and they use it as a means to cope with the stress of the situation. The person on the outside that knows nothing about it hears it as a crude joke and thinks "Oh my gosh. How could they have said what they just said?"
Available Resources	
3.0: Available Resources	"... we do have available here an employee assistance program. We have a telephone number we can call. Um, we can setup individual counseling if we'd like." "Any critical incidents, we do a critical incident debriefing as a group on certain cases...and we also have peer support groups within our agency." "So, we have a chaplain on the fire side and a chaplain on the police side and both of those guys are formally trained in debriefs from critical incidents, so they are usually the ones that are actually mediating..." "...they will set you up with therapists or psychiatrists." "I'd say even though we don't have a written policy for debriefing after an opioid call, there's still an informal debriefing..."
Barriers to Accessing Resources	
4.1: Cost	"I think that the department has done the best they can with what we know. I think they would like to do more but I think there are boundaries set in place on how to spend state funding." "I think the financial part of it is what's holding a lot of it back."

	"...it costs so much, you know. Like I said, the money is tight..."
4.2: Lack of Structural Support	"The agencies can say they're supportive but sometimes they say they're supportive but it's like actions are gonna speak louder than words."
	"Where I came from, it was 'Hey, that might have been bad, but we got another call pending. Don't worry. Suck it up. You are fine. Welcome to the job. We got money to make. Keep moving.'"
	"I think this is an industry that eats its young and does so through a lack of recognition of the things that leads to burn out and attrition and mental health issues that occur and everything else."
4.3: Perceived Stigma	"I would say the biggest problem with the resources are that they are there, but you have to be willing to reach out and ask for them."
	"I work with very old school officers, who don't believe in sharing your feelings with anybody."
	"You know that any mental illness is a stigma. You know anybody who asks for help, for anything, you know worries about being encased in that light."
	"There is still the stigma associated with either being required to go to counseling or referring a co-worker to there."
Recommendations for What is Needed	
5.0 Recommendations for What is Needed	"I think if you can tell someone is having a bad day, they need to be pulled off shift and they need to talk to somebody."
	"It's one of those things, where I think it would be a great thing to have some type of mental health training like we have every year on the physical side of things."
	"And it's good for us obviously; for us to all get together and talk as a shift, but I just don't know if that's enough to recognize the signs and symptoms...It would be good to have somebody come in as a guest lecturer about that stuff..."
	"That's one thing I personally think our department needs to step up on, is having a little better chaplain situation. Someone coming around and checking on people."
	"The four hours of mental health for the whole year, do you think that's good enough? No, I really don't. It should probably get forty hours and extend it out through the year."
	"This is personally where I think the state falls short in not mandating follow up mental health screenings."
Hardest Circumstances	
6.1 Children	"...the worst part is the bystanders where they've got maybe kids in the house and the parents are strung out on the couch..."
	"The people that you're responding to can be anywhere between a single guy in his fifties to a twenty-two-year-old mother of three that has overdosed in front of her kids. Those kinds of people right there

	are where it gets a little bit difficult for us because a lot of us have kids, a lot of us have families, we're very close with nieces and nephews, brothers and sisters, and stuff like that."
	"I think that bothers me more than anything, and I hate that more than anything for a child to have to go through that because of a silly decision that his father or mother has made to put them in that situation. That bothers me more than anything."
6.2: Family Members	"I'm always the one that has empathy for the family...It's tragic especially when it's a younger person or has an active family."
	"The effect on family is probably the biggest thing for me..."
	"And that's what affects me the most; is the family and seeing them having to go through it."
6.3: Other	"What upsets me mainly is the victim; the person who's addicted."
	"I mean we respond to a lot of drug use and it's mostly the same people with always the same thing and it's like "why aren't you learning from this?"
Discrepant Thoughts and Feelings	
7.1: Frustration	"One little thing doesn't mean nothing to us but when we are carrying fifty pounds on our back that's when it starts pulling us down and I feel like that's the way it is with the repetitiveness. You go into these places and you're just like 'What is this going to be' and 'This crap again?'"
	"It gets disheartening when it's the same person over, over, and over again because then you get kind of aggravated because you don't see any success."
	"Yes, this person is sick, this person is dead, and we have to do our job. And then afterwards, it's like dag on. You know, this is my fourth one this week. When is it going to stop? What can we do for these people?"
7.2: Overwhelmed	"...we might get a day off but we're coming back into the same stuff every single shift. And nobody realizes the emotional cost."
	"...because we get burnt out. We get deprived of sleep and deprived of family time, and constantly relive all these calls you go on..."
	"So, for the most part, you have to have a certain mindset when you're working in this field, cause if not, it can overwhelm you."
7.3: Habituation	"I hate to say it doesn't affect me, but I guess I'm just so used to it now. It doesn't really bother me now."
	"...because we're seeing it so much. It's just a very normal thing."
	"Yeah, well I would say over time, it has begun to affect me less, just because it's...You have to learn to get to a place in taking a call and not taking it on a personal level."
	"You kind of go numb to certain feelings."

7.4: Stigma Towards Patients	"...but we're more so pissed off at the people that are stupid enough to do this and they can't handle it and so they call us..."
	"I feel bad that when you walk out the door, probably their next telephone call is going to be right back to their supplier."
	"Like why can we save those who don't wanna be saved but we can't save the ones who deserve it?"
	"I hate to say this, but do you know many responsible drug addicts? I don't. If they were responsible, they would maintain employment, they would keep their bills up to date, and so on..."
	"But I guess, from a personal level for us, I'm one of those that's a little upset about looking at ok well people are dying and yes, it's a problem and then they're throwing a lot of money at it, so everyone is getting a lot of free Narcan, you know. And then, what about people struggling to pay for their insulin or their chemotherapy drugs? I mean it's like where's the societal justice, I guess."
	"I mean, you know, it's a drug induced problem--not really a medical problem--so stuff like that can be reversed."
7.5: Empathy	"...my feelings are that these people are hurting. You obviously want to help them the best way you can."
	"...we have kind of taken the stance here of empathy because of the situation, you know, not charge someone with possession of whatever the drug was or paraphernalia or whatever because of the situation that you're in when we are called."
	"My thought process always was if you're not doing this to help other people then you're in the wrong job."
	"Ultimately, at the end of the day they're still people. We have to be compassionate to our fellow people."
	"I always use the starfish analogy to get them to understand that it matters for that one that you are dealing with at that time."
Perception of Role in Reducing the Impact of the Epidemic	
8.1: Reactive Role	"...well, we're more reactive than proactive, outside of doing the PSAs, the public service announcements, or having all the fire stations be what they call safe havens."
	"I don't think that's something the fire department can fix. I know everybody calls the fire department because they think we can fix everything, but all we can really do is fix the aftereffects."
	"Well, I think that the plan for law-enforcement always has been by enforcement. You know, and I don't know that we are really capable of doing anything other than that under the current situation."
	"...we are not getting down to the nitty-gritty of fixing the problem either, we are just putting a Band-Aid on it..."

	“Ultimately, we don't have the training or the resources to help them on down the road, but we can get them back up right.”
8.2: Proactive Role	“Um, any time I get a chance to really get out and talk about what we do and some of our experiences, I think education goes a long way in preventing some of this.”
	“We do have a program where you can come in and drop off any drug whatsoever.”

Chapter 5. Discussion

The purpose of this qualitative study was to obtain the perspectives and lived experiences of 30 first responders (i.e., law enforcement officers, firefighters, and paramedics) combating the opioid epidemic throughout several rural-serving counties in Tennessee. This research was conducted in an effort to fill a gap in the literature and promote an awareness of what first responders are continuously facing during this epidemic. From the semi-structured interviews, eight themes emerged, including mental health symptoms, coping behaviors, available resources, barriers to accessing resources, recommendations for what is needed, hardest circumstances, discrepant thoughts and feelings, and perception of role in reducing the impact of the epidemic. The analyses highlight the negative consequences the opioid epidemic has had on the first responders and the pressing need for additional resources to support these overburdened frontline workers.

The research findings in this study indicate that first responders are exhibiting varying degrees of mental health symptoms, including PTSD and STS symptoms. In particular, symptoms of intrusion, avoidance, negative cognition and mood, and hyperarousal were endorsed by participants as being related to the compounding effect of continuously responding to opioid-related incidents. Although prior research has not critically examined the mental health symptoms among first responders combatting the opioid epidemic, our results address this gap in the literature and align with previous findings of increased PTSD symptoms among first responders combating other epidemics, such as the HIV/AIDs epidemic (Thompson & Marquart, 1998) and the COVID-19 pandemic (Wright et al., 2020).

Furthermore, the current study is the first to look at STS symptoms among first responders and finds that participants are experiencing moral distress, decreased empathy,

diminished professional self-efficacy, stigma, and empathetic overinvolvement. Previous research has investigated vicarious trauma and compassion fatigue among this population (Greinacher et al., 2019), and although these are often interchanged in the literature with STS, they differ from one another in definition and symptomology (Sprang et al., 2019). Thus, future research should seek to replicate and expand on the current study's findings of STS symptoms, as this may help identify mild to subclinical levels of functional impairment that do not meet clinical significance for a PTSD diagnosis (Sprang et al., 2019).

In addition to PTSD and STS symptoms, participants also disclosed symptoms of depression, anxiety, and suicidality. Although first responders reported these symptoms being due to the overall stressors of the job, it is still important to take these additional symptoms into consideration as they may be exacerbating PTSD and STS symptoms. In fact, anxiety and depression have been documented to be the most common mental health diagnoses to co-occur with PTSD (Brady et al., 2000). Even more striking is that depressive and anxiety symptoms may increase one's risk of developing PTSD following a traumatic incident (Brady et al., 2000; Sareen, 2014), subsequently increasing one's chance of experiencing suicidal ideation and behavior (Panagioti et al., 2009; Sareen, 2014). Given these findings, it is imperative for efforts to be put in place to not only assess for PTSD, but also pre-existing or co-morbid mental health disorders among this population. By doing so, the risk of mortality among first responders may decrease.

Moreover, in an effort to cope with the repercussion of repeated exposure to opioid-related incidents, first responders have developed adaptive and maladaptive coping techniques. The analyses revealed that all first responder participants engage in adaptive coping strategies, including religion, social support (e.g., talking with colleagues and using helplines), and

recreational activities (e.g., physical exercise, outdoor activities, and spending time with family). Previous research has documented that adaptive coping techniques, such as the ones found in the present study, result in post-traumatic growth and increased well-being among first responders (Arble & Arnetz, 2019)

Although this is encouraging, the benefits from the adaptive coping techniques may be overshadowed by the maladaptive coping techniques many participants also report utilizing. These maladaptive coping strategies that first responders endorsed included avoidance, dark humor, and licit and illicit substance use. Avoidance coping (i.e., minimizing or avoiding any efforts that involve reminders of the distressing event; also known as the PTSD symptom of avoidance) was coded as a maladaptive coping technique as it has been found in previous research that such efforts often exacerbate distress and mental health symptoms (Holahan et al., 2011). In addition to the preceding, first responders disclosed the use of licit and illicit substances, which included problematic alcohol consumption, nicotine use (i.e., cigarettes, vaping, and chewing), and at times, illicit substances such as cocaine. Lastly, first responders often mentioned using dark humor following difficult opioid-related calls. Previous research has documented an association between increased dark humor and exacerbated STS symptoms (Craun & Bourke, 2014). In particular, Craun and Bourke (2014) found that engaging in dark humor results in STS symptom levels similar to those of increased drinking, and has a greater impact than engaging in avoidance coping. Thus, the maladaptive coping techniques found in the current study may be indicative of psychological distress and should serve as a warning sign for remediation.

Based on the findings of our analyses and direct requests from participants, there is a need for resources to help first responders mitigate the consequences of responding to opioid-

related incidents. The analyses revealed that some participants have resources implemented within their department, including debriefings, chaplains, peer support groups, mental health professionals, and helplines. However, a majority of participants disclosed facing barriers to accessing the available resources, including perceived stigma, lack of structural support, and cost. These barriers align with previous research findings that first responders are at a decreased likelihood of seeking mental health services due to structural barriers (i.e., limited access and availability to resources, as well as cost) and stigma (i.e., fear of being seen as weak; Jones et al., 2020; Stanley et al., 2017). Such findings suggest that efforts should be dedicated to increasing the accessibility of resources within this profession.

In addition to the barriers first responders are facing when it comes to accessing resources, they also disclosed that there is a need for additional pre- and post-incident resources to be implemented. Some participants suggested resources included mandatory in-person mental health trainings, counselors and therapists, peer-support groups, mental health trainings, mental health check-ins, and so forth. The number of resources participants disclosed needing is indicative of what first responders are increasingly faced with and how responding to opioid-related incidents is affecting them. Furthermore, the lack of adequate resources may be putting first responders at risk for additional stressors, as well as exacerbating mental health symptoms. Therefore, it is imperative for departments, cities, and states to increase the availability of pre- and post-incident resources for first responders (Andersen et al., 2015; Compton et al., 2014; Szeto et al., 2019).

Moreover, the hardest circumstances (i.e., witnessing the aftereffects on children and family members) that first responders are facing when attending to opioid-related incidents, has resulted in them experiencing discrepant thoughts and feelings. While first responders are

empathetic towards their patients, they are also feeling overwhelmed and frustrated that they are continuously having to respond to this population. In addition, these feelings of frustration have translated to stigmatizing perceptions that include the use of stigmatizing language (e.g., "addict," "drug abuse," "junkie") and perceptions. These findings are consistent with previous studies, suggesting that responding to opioid-related incidents often leads to negative feelings of frustration and cynicism (Pike et al., 2019).

As a result of these discrepant thoughts and feelings, several participants disclosed becoming habituated to opioid-related calls. Research has documented that within the first responder profession, habituation towards trauma-related and death-related incidents develops as a numbing effect in an effort to avoid feeling pain (Streeb et al., 2019) and is a common aspect of the profession (Heitman, 2016). However, research has found that habituation may produce adverse mental health symptoms. For instance, Kim and colleagues (2019) found that increased amygdala habituation (i.e., the amygdala does not respond to negative stimuli or threatening environments) is associated with increased PTSD symptom severity. Such research underscores our findings in that first responders may be emotionally disengaged in situations that should elicit a response due to encountering aversive stimuli (e.g., witnessing a fatal overdose) and in turn, this may be exacerbating their mental health symptoms.

Finally, the last theme that emerged suggested that a majority of first responders exhibit decreased efficacy in reducing the impact of the opioid epidemic and often disclosed not knowing of any resources to provide patients and not having enough time to make a difference with the patient due to increased service utilization. These factors offer insight into the impact of the opioid epidemic on first responders, including their sense of powerlessness, further burdening them. As a result of first responders continuously encountering persons who use drugs, they

serve as an important bridge between the patient and community resources, such as local rehabilitation centers. By offering such resources to patients, the number of overdose deaths, emergency call volume, and state costs (i.e., it costs less to connect patients with services than to place them in the criminal justice system) may in turn decrease (Police Executive Research Forum, 2016). Thus, it is suggested that first responders may benefit from engaging in proactive behaviors and manifesting collaborations within their community to assist individuals who use drugs.

Limitations and Future Directions

This present study has features that limit inferences. First, the sample is not random and represents those who self-selected to participate. Additionally, the findings have limited generalizability, as the sample was not diverse in terms of gender, ethnicity, sexual orientation, and geographic region (i.e., all participants came from rural-serving counties), although participants did approximately represent typical characteristics from the region where sampling occurred, and sampling was purposively conducted in a region with considerable impact from the opioid epidemic. Furthermore, given the study's sensitive nature and the qualitative methodology of the investigation, participants may have underreported the repercussions they are facing. Similarly, given that the participants were not anonymous to the primary investigator, they may have felt uncomfortable answering questions in a forthright manner. Despite these limitations, the study provides novel insights into the impact and burden the opioid epidemic has elicited on first responders. It would be of benefit for future research efforts to investigate whether similar findings would manifest among different first responder demographics in order to increase the generalizability of the current study’s findings.

Conclusions

The current study contributes to the limited research assessing the impact that the opioid epidemic has had on first responders. As a result of continuously responding to opioid-related incidents, first responders are exhibiting mental health symptoms including PTSD and STS. In addition, they are feeling overwhelmed and frustrated, which has resulted in them becoming habituated and at times cynical. Furthermore, first responders are feeling powerless in reducing the impact of the opioid epidemic and view their efforts as reactive rather than proactive. With all of these compounding factors, first responders are eagerly awaiting resources that may offer them better support and feel that implementing additional services would be of benefit to the profession. However, they face several barriers (e.g., perceived stigma) when attempting to connect to currently available resources, barriers that unaddressed may also impact efforts to provide additional supports. Considering the mental health consequences first responders are reporting, developing prevention and intervention strategies and trainings that circumvent perceived stigma and address documented symptomology is vital for first responders combatting the epidemic.

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APPENDICES

Appendix A: Interview Guide

Question	Follow-Up Probes
1. First responders are frequently involved in critical incidents involving substance use. Please tell me about your experiences with the current opioid inflation within the community.	1. When you receive calls related to opioids, what are the typical circumstances (e.g., overdose, death, illegal selling)? 2. What opioid do you find to be the most common to get an emergency call for?
2. Please describe the most recent opioid-related call you have been on.	3. Approximately how many months ago did this incident occur? An exact date is not needed. 4. How were you involved? 6. What was the outcome? 7. Are there any other incidents relating to opioids that you can share with me?
3. Can you please describe your typical thoughts and feelings when attending to opioid-related incidents?	6. What circumstances about substance use-related calls has affected you the most (e.g., seeing someone overdose, seeing the effect on the family, seeing death, having to resuscitate someone)? 7. How do you think these circumstances have translated into other areas of your life: a. Family Life b. Social Life c. Peer Relationships d. Professional Relationships e. Physical Health (e.g., sleep, concentration, weight) 8. How would you describe your overall mental health in regard to working in one of the highest opioid using states?

	9. In regard to your team, how would you describe their current mental health? 10. Is there anyone in your department, maybe even you, that could possibly be leaning on substances as a coping mechanism (e.g., drinking, smoking)? 11. Is there anyone in your department, maybe even you, that could potentially be experiencing suicidal thoughts or behaviors? a. If there has been a time when a local first responder has taken their life, how has this affected the dynamics of the station? 12. What would you do if a fellow coworker in your department seemed to be experiencing a mental health related issue?
4. After experiencing opioid-related calls, how do you typically cope with the circumstances at hand (e.g., joking)?	13. How effective do you think these coping techniques have been thus far? 14. How have your coping strategies changed over the years? 15. Have you ever sought out formal debriefings? a. If yes, i. Who facilitated the debriefing (e.g., a mental health professional or a trained peer)? ii. What was your experience with debriefing? iii. How effective do you believe the debriefing was for you?

	b. If no, i. What was the reason behind not seeking a formal debriefing? 16. Have you ever sought out counseling? a. If yes, i. How did you get into contact with them? ii. What was your experience like with them? iii. How effective did you find the counseling sessions to be? b. If no, i. What was the reason behind not seeking counseling?
5. Do you feel support from your station and department? Please elaborate.	17. What protocol does your department follow after a critical incident related to opioids has occurred? 18. Do you feel that these resources are sufficient for you to be able to debrief what occurred? 19. What are some of the barriers to accessing resources? 20. Do you receive trauma/mental health training? 21. How can trauma/mental health trainings be improved in your department? 22. Would you like to see other resources implemented?

	a. If so, could you please describe what you would want to see put forth? 23. Do you think that all the staff would be open to these new resource(s)?
6. Do you feel that your team has received adequate training to deal with fatal and non-fatal overdoses?	24. Can you please describe what trainings you have received? 25. Do you consider yourself to know a lot, moderate, or a little about substance use? a. Is this knowledge primarily from the trainings or from other avenues (e.g., family)? 26. Does your team have to wear any type of protective clothing when attending to substance-related calls? a. If so, did this start recently, or has it been like this for many years? 27. How do you feel about having to wear protective clothing when responding to substance use calls where there may be needle sticks or fentanyl? 28. How do you and other first responders from different fields work with each other when dealing with opioid-related incidents? 29. Have you and your employer created a relapse prevention plan? a. If yes, can you please describe it to me. i. Aside from these already implemented procedures, in what other ways do you see yourself and your team playing a

	role in reducing the opioid epidemic? b. If no, how do you see yourself and your team playing a role in reducing the opioid epidemic? 30. Do you believe that all first responders should be involved in harm reduction efforts (e.g., providing naloxone; needle and syringe program; medication-assisted treatment; health hubs)?
7. Is there anything else you believe I should know about your work pertaining to the opioid epidemic?	

Appendix B: Demographic Questionnaire

In order to know a little bit of information about the participants in this research, please complete all of the following questions. Please fill-in-the-blank or circle the appropriate answer to the question. Additionally, keep in mind that **there is a fourth page** which includes question 22. To keep identifiable information separate, I will be separating the last page of the questionnaire from the rest.

1. Age _____

2. Gender
    a. Male
    b. Female
    c. Other _____

3. Sexual Orientation
    a. Heterosexual
    b. Homosexual
    c. Bisexual
    d. Other _____

4. Ethnicity
    a. Caucasian/White
    b. Black/African American
    c. Latino(a)/Hispanic
    d. Asian/Asian American
    e. Native American
    f. Native Hawaiian/Pacific Islander
    g. Other____

5. Level of Education
    a. Some High School
    b. High School
    c. Associated Degree
    d. Bachelor's Degree
    e. Master's Degree
    f. Ph.D., M.D., J.D., etc.
    g. Other _____

6. Marital Status
    a. Single
    b. In a relationship
    c. Married
    d. Divorced
    e. Widowed
    f. Other _____

7. Income
    a. Less than $25,000
    b. $25,000-$50,000
    c. $50,000-$100,000
    d. $100,000-$200,000
    e. More than $200,000

8. Have you ever been diagnosed with a mental illness?
    a. Yes
    b. No

9. If yes to the prior question, please specify:
    _____

10. Current Position
    a. Police Officer
    b. Firefighter
    c. Paramedic

11. Rank of Position if a **POLICE OFFICER**
    a. Police Technician/Community Service Officer
    b. Police Officer/Patrol Officer/Police Detective
    c. Police Corporal
    d. Police Sergeant
    e. Police Lieutenant
    f. Police Captain
    g. Deputy Police Chief
    h. Chief of Police
    i. Other _____

12. Rank of Position if a **FIREFIGHTER**
    a. Probationary Firefighter
    b. Firefighter/EMT
    c. Firefighter/Paramedic
    d. Driver Engineer
    e. Lieutenant
    f. Captain
    g. Battalion Chief
    h. Assistant Chief
    i. Fire Chief
    j. Other _____

13. Rank of Position if a **PARAMEDIC**
    a. Paramedic (EMT-P)
    b. Other _____

14. Length of **TOTAL SERVICE** as a first responder
    a. Less than 1 year
    b. 1-2 years
    c. 2-5 years
    d. 5-10 years
    e. 10-15 years
    f. 15-20 years
    g. Longer than 20 years

15. Length of service in your **CURRENT RANKING**
    a. Less than 1 year
    b. 1-2 years
    c. 2-5 years
    d. 5-10 years
    e. 10-15 years
    f. 15-20 years
    g. Longer than 20 years

16. Length of **SHIFTS**
    a. Less than 8 hours
    b. 8-12 hours
    c. 13-24 hours
    d. 25-48 hours
    e. 49-72 hours
    f. 73-96 hours
    g. More than 97 hours

17. How many people are employed in your station? _____

18. How many people are employed in your department? _____

19. Approximately how many opioid-related incidents have you been involved in to date? _____

20. Approximately how many opioid-related incidents does your team typically attend to within a month? _____

21. What is the approximate response time when going to opioid-related incidents (e.g., minutes, hours)? _____

22. If you would like the results of the study to be sent to you, please insert your email: _____

Appendix C: Recruitment Email

Hello Chief _____,

My name is Thalia Sullivan. I am a graduate student in the Clinical Psychology Doctoral Program at East Tennessee State University (ETSU). I am conducting research that involves assessing repeated-exposure trauma within Tennessee first responders attending to opioid-related incidents. I am looking for police officers/firefighters/paramedics *(only one of the first responder populations will be put depending on which captain I am emailing)*. This research involves a semi-structured qualitative interview that should take about 30 to 45 minutes to complete.

I understand that your employees' shifts may vary in hours, so interviews can be conducted at their place of work if that is easier and allowed or they can be conducted in my lab on ETSU's main campus. If an employee of yours decides to participate, I will give them the option of where they feel the most comfortable partaking in the interview. I only ask that if they choose their place of work, that there is a private room we can do our interview in, so I can uphold confidentiality.

Through the interview results, I am hoping to systematically develop an effective statewide trauma intervention that will increase resiliency and decrease repeated-exposure trauma in Tennessee first responders. If you can please forward this email to your staff that would be greatly appreciated.

If anyone is interested in volunteering their time to participate in my research, they can contact me at my email address listed below. Thank you for taking the time to read my email.

Kind Regards,

Thalia Sullivan
Clinical Psychology Doctoral Program
East Tennessee State University
(916) 842-9895
sullivantp@etsu.edu

Appendix D: First Responder Resources

Crisis Lines:

1. **Safe Call Now (206) 459-3020** = 24/7 helpline staffed by first responders for first responders and their family members. They assist with treatment options for responders who are suffering from mental health, substance use, and other personal issues.

2. **Fire/EMS Helpline (888) 731-3473** = Also known as Share the Load. Run by National Volunteer Fire Council. Not only are they a help line, but they also have texting. They have a collection of resources that they can provide to responders.

3. **National Suicide Prevention Lifeline (800) 273-8255** = not first responder specific but can talk anyone who needs help. They have a large number of first responders and veterans who volunteer.

4. **Crisis Text Line 741-741** = text "start" or "help"

5. **Copline 800-267-5463** = a confidential helpline for U.S. law enforcement.

6. **Frontline Helpline (866) 676-7500** = run by first responder call-takers 24/7.

7. **Veterans Crisis Line (800) 273-8255 and press 1, or text 838255** = a crisis line specifically for veterans of the U.S. armed forces

In Person Resources:

1. **Behavioral Health and Wellness Clinic (423) 439-7777** = It is part of East Tennessee State University's Department of Psychology Doctoral program in Clinical Psychology. The clinicians are graduate students supervised by licensed psychologists and specialize in a variety of areas that include, but are not limited to, trauma, depression, anxiety, loss/grief, and relationships.

2. **Summit Counseling Services, LLC (423) 491-5822** = They offer individual therapy specializing in trauma, anxiety, depression, and suicidal ideation. Their prices are based on a sliding scale and also accept certain insurance plans. They are located in downtown Johnson City.

VITA

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Master of Science, Clinical Psychology

East Tennessee State University, Department of Psychology, 08/2019-05/2021

Bachelor of Arts, Psychology

California State University, Sacramento, Department of Psychology, 01/2016-12/2017

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Professional Experience:

Graduate Research Assistant

Department of Psychology, East Tennessee State University (20 hrs./wk.), 08/2019-05/2021

Post-Baccalaureate Research Assistant

Department of Psychology, University of Nevada, Reno (10-15 hrs./wk.), 09/2018-05/2019

Undergraduate Research Assistant

Department of Psychology, California State University, Sacramento (20 hrs./wk.), 01/2017-07/2019

Publications:

**Graduate student co-authors. **Undergraduate student co-authors.*

Bohon, L. M., Lancaster, C.*, Sullivan, T. P., Medeiros, R. R.*, & Hawley, L.* (2020). The Effects of Manipulated and Biographical Parent Disengagement on the Sexually Risky Attitudes and Intentions of College Women. *Evolutionary Psychological Science,* 1-14. 10.1007/s40806-020-00266-6

Bohon, L. M., Sullivan, T. P., Medeiros, R. R.*, Lancaster, C.* (2021). The effects of manipulated and biographical parent disengagement on the sexually risky attitudes and intentions of college women and men. Submitted to Evolutionary Psychological Science.

Sullivan, T. P., Blazer, E. C.**, Hymes, A. S., & Ginley, M. K. (2021). A qualitative investigation into the trauma exhibited by first responders tackling the opioid epidemic in Tennessee. Manuscript in Preparation.

Kromash, R.*, Mitchell, H.*, Sullivan, T., Siebert, S*, Moore, K., & Ginley, M. (2021). The Difficulties in Emotion Regulation Scale: An examination of measurement invariance across gender and association with risky behavior among undergraduates. Manuscript in preparation.