

VETERAN AND MILITARY CRIMINAL JUSTICE INVOLVEMENT: PATHWAYS
TO OFFENDING

A Dissertation

Presented to

The Faculty of the Department of Criminal Justice & Criminology
Sam Houston State University

In Partial Fulfillment
of the Requirements for the Degree of
Doctor of Philosophy

by

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December, 2021

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DEDICATION

There are many people who I could dedicate this dissertation to but most of all, it is for my brothers and sisters – those who have served or continue to serve honorably in the armed forces. Together, we have been strangers in strange lands knowing only success through a return home to a society that largely does not understand what we have experienced.

This year alone, over 6,000 veterans have died by their own hand.

Another 100,000, most of whom have honorably served, are incarcerated.

Doctors and Psychologists have studied our psyche for decades and have only yet partially revealed a simple truth we all find evident: no man or woman can endure war without eventually being *broken*.

So, mostly, this dissertation is for those who found their way as wayward youths to foreign shores with rifles in their hands and had the fortune to return home. Remember that you have a duty now, not just to your country but to each other – I can only hope that this project plays a small part in fulfilling mine.

Never above you

Never below you

Always beside you

ABSTRACT

Smith, Wesley Thomas. *Veteran and military criminal justice involvement: Pathways to offending*. Doctor of Philosophy (Criminal Justice), December 2021, Sam Houston State University, Huntsville, Texas

Since the onset of the Second World War, there has been a steady if not modest body of research focused on veterans and the criminal justice system. Over the last two decades and shortly after the start of the Global War on Terror, this research has largely become oriented around two perspectives. First, the Violent Veteran Model posits that learned behavior in the military, namely, combat, influences subsequent offending and is responsible for disparate involvement in violent crime among veterans. Second, the Self Medication Hypothesis has been adapted to suggest that the trauma of combat among veterans leads to mental health issues which are then followed by substance use and other associated types of offending. As of yet, there have been no attempts to unify these two models. Additionally, important factors such as the length of time deployed overseas are often omitted from empirical tests of either model.

Despite these paradigms being present in veteran research for the better part of 50 years, there is little consensus as to why veterans engage in crime within the broader literature. Considering this, there is a demonstrated need to revisit both the Self Medication Hypothesis and Violent Veteran Model in order to form a more holistic picture of the etiology of veteran offending. The current study provides a framework for the Deployment Offending Nexus for veterans. This is accomplished through the establishment of a novel sample of veterans via social media using chain-referral sampling. Then, Ordinary Least Squares regression and structural equation modeling are used to validate the unified model. Despite general support for a unified model, findings suggested that the effect of military service-related factors on subsequent offending were

moderate at best. As a result, the current project demonstrates the potential need for a holistic model of veteran offending which is inclusive of factors outside of the purview of deployments and combat. Additional, supplementary findings suggest the need for expanded aftercare services for combat veterans.

KEY WORDS: Veterans; Offending; Structural equation modeling; Combat; Deployment; Substance use; Mental health

ACKNOWLEDGEMENTS

I would be remiss if I did not mention the shoulders of the Titans I have “stood” upon in undertaking the venture that has been this project. First, I would like to thank my committee, Dr. Erin Orrick, Dr. Eric Connolly, Dr. Ryan Randa for their guidance. Erin, you have put up with my often strange sense of humor, provided innumerable learning opportunities, and given mentorship and guidance while the world was in the throes of a great pandemic. For this and more, I am eternally grateful. Eric, you have been one of the most personable and knowledgeable faculty members I have ever known. The professional and statistical knowledge you have provided over the years have been invaluable – and I hope to emulate your example whenever possible. Ryan, from guidance on the current projects’ theoretical foundation and tools, to goofy tweets in pirate speak, you have always brought a levity that belied the deep knowledge you were willing to impart on any topic. While imbuing critical lessons over the last several years, you have also shown me that this job can be meaningful *and* fun. Thank you all for your guidance in this project and those we have worked on before – my dissertation is the better for it, and so am I.

I would like to thank the service members who took my survey. I, often a complete stranger, asked you to open up about sensitive topics. This ranged from combat, to mental health, substance use, and contact with the criminal justice system. I understand that this process was at times highly personal if not invasive. I am so grateful for your willingness to be a part of this project and for entrusting me with these portions of your personal stories. I will make sure the effort you have expended is returned with good effect for our community.

Additionally, I am so very fortunate to have a “squad” outside of the military – the Salty Scholars and company. Dr Joshua Shadwick, Dr. Layne Dittman, Master Bruce...errr Frank Benton, Alexis Rockwell, Danielle Havercake, Caitlin Matekel, and Justin Delvo. We are a merry-band of misfits but I wouldn’t have it any other way. Your support and wisdom throughout my entire graduate school career has had an immeasurable impact and I am eternally grateful to call you all friends.

I would also like to thank my parents, Kristi Smith and Thomas Smith for always encouraging me to pursue the work I enjoy and found meaningful. Their support has been endless, and without it, I would not be where I am today. Perhaps, most importantly, I am so grateful to my wife, Dr. Hottie, Kathleen Padilla. You have provided boundless love and support through this ordeal, while simultaneously planning a wedding, and finishing a PhD of your own. I am so grateful for your support and our life together – there is no one I would rather be beside. You are MY biggest cheerleader, my best friend, my chookity pok.

PREFACE

“The combination of a breakdown of ordinary peace time restraints and the increased pressures of wartime existence is often more than the ordinary man, woman, or child can withstand”

(Rosenbaum, 1940, p. 739)

As of September 2021, the Global War on Terror (GWOT) will have been waged on various fronts, including Afghanistan, Iraq, the Philippines, contiguous Africa, and across numerous other locales for two decades. In recent years, troop drawdowns have occurred in the two most prominent theaters of this conflict, Afghanistan and Iraq, yet approximately 5,000 troops and many military contractors still remain in both countries. The most recent troop reallocation, announced by the Pentagon on January 15, 2021 (Garamone, 2021), includes positioning troops in the Middle Eastern countries for enduring counterterrorism posts, which may exist long into the current decade. Despite numerous names *en face* used to describe these operations over the last two decades and press releases by the Department of Defense using buzzwords such as “drawdown” and “withdrawal” in descriptions of their operational strategies, the fact that troops will continue to be deployed to these countries further punctuates the point that the GWOT is far from over and the population of veterans and service members who have experienced combat in such theaters may remain sufficiently large for there to be a continued need to study the downstream effects of asymmetric warfare for some time.

While there are numerous consequences associated with combat operations, which the nation, as well as individual service members face, some have received relatively more attention in the scientific community than others. We have endeavored greatly to understand and treat the physical and psychological consequences of warfare. However, in doing so, we might have forgotten that these experiences have other

consequences which may range from decreased familial functioning, alienation from non-military peers, and changes to economic and social opportunity structures, which may or may not manifest during and after their tenure as service members, all of which may influence numerous outcomes which are of interest to researchers.

While many would argue (as I do) that the direct consequences of warfare are primarily physical and psychological, this does not detract from the importance of measuring social outcomes among service members. Take, for example, criminal justice system involvement. There is a rich and broad literature that finds that criminal justice contact and imprisonment have a wide array of subsequent direct, as well as collateral, consequences for those who engage in crime. If those who end up becoming criminal justice involved represent even a small proportion of veterans, then there is a need to examine the pathways to which veterans arrive in the criminal justice system and how they can be interrupted. In a recent address at the Veterans of Foreign Wars National Convention, President Biden stated that “[Our] nation has just one truly sacred obligation: to prepare and equip those we send into harm’s way, and to care for them when they come home” (2021). If this is truly the case, there needs to be a purposeful and renewed focus on how veterans become entangled with the justice system in order to not only address their criminogenic needs but also to ameliorate the avoidable negative effects of such consequences.

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CHAPTER I

Introduction

While the Global War on Terror (GWOT) lasted over two decades, most service members will serve more modest contracts with the military before being discharged. The average length of military enlistment among servicemembers of the Post-9/11 era is approximately seven years (Taylor et al., 2011), after which they are expected to seek employment or education outside of the military and reintegrate back into society. While numerous veterans do return home and reintegrate successfully, research has highlighted that veterans are relatively more likely than non-veterans to either become criminal justice system engaged or, among those incarcerated, to be convicted of more serious offenses (Culp et al., 2013; Elbogen et al., 2012; Snowden et al., 2017; Van Dyke & Orrick, 2017; White et al., 2012). National estimates suggest that veterans are proportionally represented in the criminal justice system (Bronson et al., 2015); however, doubts have been cast on this assumption (Brown, 2008; Brown et al., 2013). Regardless of the representation of veterans within the criminal justice system, existing research suggests that offending patterns, with respect to the frequency or type of offending veterans engage in relative to non-veteran peers, demonstrate a need for careful consideration of the veteran population in criminological research.

To better understand veteran offending, Chapter I will provide a brief overview of past research on the etiology of offending among veterans, military experiences, health, and substance use among veterans, and how these factors may be interrelated to both one another as well as criminal justice involvement among veterans. The overarching goal of this project is twofold: 1) to identify the strengths and weaknesses of current veteran

research in the criminological sphere where offending and justice involvement are concerned, and 2) to apply that understanding to develop a more encompassing model of the pathways to criminal justice involvement among veterans.

Etiology of Veteran Offending

Questions as to whether veterans disproportionately come into contact with the criminal justice system and why they may do so are far from new (Rosenbaum, 1939; Willbach, 1947). While some research suggests that veterans are more likely to engage in criminal offending or violent behavior (Bronson et al., 2015; MacManus et al., 2012; Orcutt et al., 2003; Short et al., 2018; Van Dyke & Orrick, 2017; White et al., 2012), there are still questions as to why this may be the case. Two prevalent explanations in the veterans' literature are the Violent Veteran Model (VVM; Archer & Gartner, 1976) and the Self-Medication Hypothesis (SMH; Khantzian, 1997). While these models are not adversarial, they have often been applied to justice involved veterans (JIV) within different contexts and for different reasons. The VVM posits that the normalization of violence directly results from military training, conditioning, and combat (Archer & Gartner, 1976). This explanation has not only been used to explain rises in post-war homicide rates (Archer & Gartner, 1976; Blonigen et al., 2016; Rohlfs, 2010; Stamatel & Romans, 2018; Willbach, 1947) but also crime at the individual-level (Blonigen et al., 2016; Van Dyke & Orrick, 2017), as well as the types of crime veterans engage in (Orcutt et al., 2003; Short et al., 2018; White et al., 2012).

Conversely, the SMH is not confined solely to veteran-focused criminological studies. Rather, this explanation posits that an individual who suffers trauma may choose to ameliorate the negative psychological consequences of such experiences by engaging

in substance use (Awad & Voruganti, 2015; Blume et al., 2000; Khantzian, 1997). As a result, individuals engage in substance use (which may in itself be a crime) as well as associated crime (Awad & Voruganti, 2015; Blume et al., 2000; Khantzian, 1997) and may be more likely to become criminal justice involved. This framework is often applied to the veteran literature through the lens of combat being an intrinsically traumatic experience within which other traumatic experiences are nested (e.g., watching comrades die, being injured, etc.).

While both the VVM and the SMH have been independently applied to explain criminal offending and criminal justice involvement among JIVs, few, if any, studies have unified these models, let alone modified both frameworks to address potential gaps in our understanding of what factors lead to veteran involvement in the criminal justice system. As a result, it may be warranted to examine the key components of each framework, how they fit together, and what gaps may exist in their cumulative ability to understand veteran offending.

Military Experiences

Service members experience a variety of long- and short-term training events during their tenure. Perhaps the most widely recognized event is colloquially known as “Boot Camp,” “Initial Entry Training,” or “Basic Combat Training” at the beginning of service members’ military careers. During these and similar training events, individuals are taught to engage in acts of violence, which are, to some degree, the cornerstone of their decision-making processes while in the military (United States Marine Corps Training and Education Command, 2019). Exposure to this training over time as well as real-world practice doing violence (e.g., combat) may reinforce individual views of

violence as an appropriate response tool (Brown, 2008) and result not only in an increased likelihood of offending but in an increased likelihood of violent offending, aligning with the core argument of the VVM (MacManus et al., 2012, 2013; Rohlfs, 2010).

Conversely, deployments, combat, and perhaps to a lesser extent training, are stressful events. Specifically, deployments that proffer the uncertainty of combat being engaged in at virtually any point in time may increase stress among service members (Due et al., 2015). Because service members may not have the same access to social support networks abroad that they have at home, the cumulative effects of this stress may present much like sustained trauma (Sreenivasan et al., 2013) and result in maladaptive coping mechanisms such as substance use (Barlas et al., 2013; Brown, 2011; Purcell et al., 2016; Schumm & Chard, 2012). Additionally, exposure to combat, which is in itself traumatic, may also be associated with events such as injury, witnessing comrades die, and the taking of an enemy life. The trauma of these events also carry the potential of engaging in substance use as a coping mechanism (Blume et al., 2000; Zlotnick et al., 2009). Considering this, it may be easy to see how the culmination of military experiences may result in engaging in self-medication through substance use as a method of coping with past trauma, as posited in the SMH (Hawn et al., 2020; Khantzian, 1997). While the relationship between combat experiences and self-medication has been previously examined in the literature (Possemato et al., 2015; Schumm & Chard, 2012; Shipherd et al., 2005), few, if any, projects have examined if deployments influence self-medication, or if combat operates indirectly through deployment experiences. Because

combat is relatively less common than deployments (Vespa, 2020), this may be important in gaining a greater understanding of the pathways to offending among veterans.

Health

The breadth of the veteran literature outside of the criminal justice field focuses on the physiological and psychological consequences of military service and combat. As a result, it is well documented that service members are at an increased risk of experiencing numerous physical health problems due to deployments or combat (Chin & Zeber, 2020; Hoge et al., 2008; MacGregor et al., 2009; Schneiderman et al., 2008; Vasterling et al., 2009), which can exacerbate or even cause undesirable mental health outcomes (Chin & Zeber, 2020; MacGregor et al., 2009). Due to poor physical health, mental health outcomes often take the form of depressive and/or anxiety disorders (Chin & Zeber, 2020; Hatch et al., 2013; Hoge et al., 2006). Past research has found that mental health is correlated with criminal justice involvement; however, it has also been found to not independently predict violence (Elbogen & Johnson, 2009; Mulvey, 1994; Rueve & Welton, 2008) or account for substantial levels of violence within the general population. As a result, physical and mental health issues may not satisfactorily fit within the VVM. Despite this, mental health issues have been highly correlated with substance use (Baillargeon et al., 2010; Jeffirs et al., 2019) and are likely still important to examining veteran offending, especially within SMH models. One would expect that mental and physical health issues have small independent effects, and conversely, primarily influence offending through substance use. To date, this relationship has not been examined within the JIV population in a manner that allows for the substantiation of such claims.

Substance Use

Over the past several decades, substance use has been a key focus of the JIV literature, particularly those projects which test the SMH. Broadly, research in this area suggests that combat is associated with increased alcohol consumption (Hawkins et al., 2010; Shipherd et al., 2005; Wilk et al., 2010), prescription drug misuse (Kelley et al., 2019; Mowen et al., 2020; Tam et al., 2020), and illicit drug use (Bremner et al., 1996; Eisen et al., 2012; Hawkins et al., 2010; Hoopsick et al., 2018; Shipherd et al., 2005), which may then, in turn, lead to criminal justice involvement. As previously mentioned, from an etiological perspective, substance use among veterans within the SMH is explained as a method by which veterans deal with the physiological consequences of combat and other trauma, notably chronic injuries and pain management (Livingston et al., 2021; Loflin et al., 2017; Possemato et al., 2015; Shipherd et al., 2005). Increased likelihood of substance use has been specifically linked to combat trauma (O'Toole et al., 2020; Shipherd et al., 2005) and has provided strong evidence for the validity of SMH among veteran samples. Additionally, there is evidence that deployments aside from combat are also associated with negative physiological and psychological health outcomes (Harvey et al., 2011; Hoge et al., 2006; Jakupcak et al., 2008; 2010; Levine et al., 2005; Meadows et al., 2015; Newby et al., 2005) which may, in turn, lead to substance use (Harvey et al., 2011; Hoge et al., 2006; Jakupcak et al., 2008, 2010; Levine et al., 2005; Meadows et al., 2018; Newby et al., 2005). While deployments have not been a focal point of the JIV literature, this may be taken to suggest that they may be meaningful predictors of substance use among veteran samples.

Dissertation Overview

As of 2012, approximately 181,500 veterans were in prison and jail within the United States (Bronson et al., 2015). These incarcerated veterans make up at least 8% of the correctional population in the United States. Although veterans are a substantial proportion of the prison population and an important demographic, thus far, there are few answers as to why veterans are more likely than non-veterans to come into contact with the criminal justice system or be sentenced for violent offenses. In recent years, the veteran literature has implemented numerous theoretical perspectives to explain why veterans engage in different types of criminal offending. The Violent Veteran Model and Self-Medication Hypothesis are two of the most prevalent paradigms uniquely suited to examine the etiology. While these perspectives are not adversarial, each poses unique etiologies for different types of offending (e.g., violent vs. drug) and has demonstrable shortfalls when practically applied. While the VVM adequately explains violent crime among veterans, it provides little guidance as to why they may engage in non-violent crimes such as drug offenses.

Conversely, when the SMH is viewed alongside the current mental health literature, serious questions arise about the validity of this model in predicting violent crime. Additionally, few examples of testing either of these frameworks using statistical modeling techniques more advanced than logistic and ordinary least squares regression. Last, there may be important covariates missing in the breadth of research on both perspectives – namely, the influence of deployments on criminal offending.

The current dissertation aims to address these issues by proposing a hybridized model accounting for exposure to events that normalize violence and precede and

potentially incentivize self-medication. Further, important covariates omitted in past research, such as deployment exposure, will be accounted for in order to establish a more holistic picture of the pathways to veteran offending. This will be accomplished using Structural Equation Modeling (SEM). Simply put, the current study will increase the understanding of the relationship between deployments, combat, mental health, substance use, and criminal offending. This is important because existing analytical strategies in the JIV research do not allow researchers to develop path models which demonstrate the indirect and direct effects of observed factors and, as a result, may not model causal mechanisms as accurately (Muijs, 2011) or properly demonstrate all criminogenic risk factors for JIVs. Apart from increasing the broader knowledge base in this area, the current project has pragmatic implications. For example, numerous programs aim to address the causes and correlates of offending among incarcerated veterans (Blue-Howells et al., 2013). However, if these programs do not have adequate information to draw from relating to the type and magnitude of criminogenic factors among veterans, it is likely that their effectiveness in reducing recidivism is constrained. Considering this, there is a demonstrated need for researchers to accurately determine what factors influence subsequent offending among veterans and to what degree. One factor which has not adequately been explored in the literature is military deployment. Theoretical lenses such as the VVM, taken with other research, suggest that deployments may directly influence criminal justice related outcomes such as violent offending.

Additionally, theories in the psychological literature such as the SMH alongside existing research suggest that deployments may have directly influenced mental health outcomes and subsequently have indirect effects on substance use and offending. As a

result, deployments may, both directly and indirectly, influence criminal justice outcomes. However, few studies to date examine how deployments influence criminal justice involvement or are sufficiently mathematically and methodologically rigorous to determine if deployments have any causal role in such outcomes. As such, the current project seeks to examine the effects of deployments and other factors on criminal justice outcomes among veterans by answering two research questions: 1) do military deployments have direct and indirect effects on subsequent offending among veterans, and 2) what are the direct and indirect effects of previously observed factors such as combat, mental health, and substance use, on subsequent offending among veterans?

The current project will proceed in several steps. First, past research on veterans in the broader criminological and psychological literature will be used to construct theoretical models of the nexus of veteran criminal justice involvement. Second, because several endogenous variables in the proposed models will be latent by nature, confirmatory factor analysis (CFA) will be used to construct and validate measurement models. Third, the current study is primarily concerned with criminal offending that occurs after military service. As such, the variable criminal offending will be used as the primary endogenous variable of interest within a traditional structural equation model (SEM) framework.

This dissertation is structured as follows. Chapter II provides foundational knowledge on veterans within the broader criminological, psychological, and medical literature. This begins with a discussion of the scope and prevalence of veteran offending, followed by an in-depth examination of the VVM, SMH, and how these theories can be unified without alteration. Next, a discussion of how military experiences, health, and

substance use form the pathways to offending among veterans. Within these sections, the role military deployments may play in influencing these risk factors is discussed. Last, a revised framework is proposed, which fills in a major gap in the literature by hybridizing the VVM and SMH while observing deployment experiences is discussed. Specifically, justification will be provided for the necessity of disentangling the direct- and indirect-effects of combat and deployment on criminal justice outcomes alongside the inclusion of a multidimensional construct of combat experience. Chapter III describes the methodology of the current project, including the method of data collection, comparison of the study sample to nationally representative samples, and the proposed analytical strategies. Chapter IV focuses on the results of the quantitative analyses in the project and how limitations in this project should be taken to interpret findings. Last, Chapter V discusses the implications for theoretical development, future research, and policies as they relate to the findings of the current project.

CHAPTER II

Literature Review

The overall objective of this study is to provide and justify a framework for veteran offending. This framework will consist of components of the VVM and SMH while addressing the prominent etiological gap in both perspectives posed by the omission of deployment experiences. In the following sections, I address important work in the prevailing veteran literature (both inside and outside the realm of criminological study) that contributes to the current dissertation. First, I provide a broad overview of *how* veterans offend. This is done by examining the prevalence of criminal offending and what types of crime veterans engage in.

Second, I present an in-depth discussion of the VVM and SMH separately and how each model in its current form may be unified. Third, I will present an overview of the correlates and pathways to offending among veterans. This portion of the dissertation examines how military experiences, health, and substance use form an interrelated nexus of events and experiences which may influence the likelihood of subsequent offending. Specifically, this section demonstrates how military experiences may create pathways conducive to offending among veterans, which have been validated to varying degrees by the VVM and SMH. Additionally, this section discusses deployments and their potential to influence subsequent offending indirectly through mental health and substance use in alignment with the SMH.

Fourth, I discuss how combat and deployments influence physiological and psychological health outcomes among service members and veterans. The purpose of this is to examine the prevalence of such outcomes among veterans, alongside the direct

downstream effects of combat experiences and deployments to combat environments, and how these events “set the stage” for concurrent outcomes of interest to the current study.

Fifth, I discuss the scope of and issues pertinent to substance use among veterans. This includes a focused discussion on the relationship between substance use and health issues among veterans. Specifically, the causal mechanisms of substance use within veteran populations such as those proposed by the SMH are discussed, as well as the nature of these relationships. Particularly, the reciprocal relationship between undesirable mental health outcomes resulting from combat, such as post-traumatic stress disorder (PTSD) and substance use are discussed.

Last, a short discussion is offered, which provides insight into how future veteran research can build upon work that implements the VVM and SMH, and a proposed structural model for such projects. Specifically, I highlight how researchers can use proximal measures in retrospective studies if no true measures of deployment stress are available. In addition, a discussion is offered regarding the necessity of a multidimensional construct of combat rather than the unidimensional factors typically applied in this vein of research. This section closes with the specification of a theoretical model that unifies the suppositions of the VVM and SMH while addressing the gaps and challenges posed by the inclusion deployments and specification of combat. This is done to provide a model for researchers which captures a more holistic picture of criminal justice involvement among veterans.

Criminal Offending Among Veterans

Veterans engage in crime just as non-veterans do. In 1996, Sampson and Laub suggested that joining the military represented a *turning point* by which individuals

knifed-off their criminogenic associations and were more likely to desist from involvement in crime. While there is no doubt that their broader proposition of the life-course perspective was a boon to criminological studies of the time and many that followed, it may not be wholly applicable to explaining the phenomenological involvement in crime among veterans. For example, in the last ten years alone, numerous studies have found that veteran status is significantly correlated with an increased likelihood of becoming engaged with the criminal justice system (Culp et al., 2013; Elbogen et al., 2012; Snowden et al., 2017). While this stands in opposition to recent research which supports the notion that the correctional population of veterans is representative of the broader U.S. population (Bronson et al., 2015; Vespa, 2020), there is concern over the fidelity of these estimates as many prisons, jails, and other criminal justice entities do not collect, verify, or report information on the veteran status of those in custody (Brown, 2008; Brown et al., 2013; Elbogen et al., 2012). Taken together with the irregularity on the Bureau of Justice Statistics (BJS) reporting on incarcerated veterans (U.S. Census Bureau, 2019), alongside prevalence estimates of veteran status among state correctional agencies, which range from 2.3% to 20% (Brown et al. 2013), it may be the case that official estimates paint a very different picture of veteran participation in the criminal justice system, compared to reality. The implications of such disparities are somewhat shocking. For instance, only 10% of Oregon's state population are veterans of the U.S. Military (U.S. Census Bureau, 2019), contrasting with the 19.1% of their correctional population, which are veterans (Brown et al., 2013). This is mirrored, although to a somewhat lesser extent, in Colorado, whose veterans make up 7.8% (U.S. Census Bureau, 2019) of their state population but comprise 9.2% of their correctional

population (Brown et al. 2013). If these prevalence estimates are the norm rather than the exception, then the *emerging storm* Brown and colleagues (2013) identified has not only come to pass but may be here to stay as long as the United States continues to have demand for a constant supply of veterans to fight in conflicts such as the Global War on Terror (GWOT).

Veteran Crime

Veterans may disproportionately engage in different types of crime.

Approximately 9% of veterans and service members that have served in the Iraq and Afghanistan installments of the GWOT have been arrested since returning home from their military service (Elbogen et al., 2012). These justice-involved veterans (JIV) become entangled with the criminal justice system for a variety of reasons. The most recent national-level survey of veterans in prison and jail (Bronson et al., 2015) finds that veterans are incarcerated in jail for a variety of reasons, including property-based crimes (21%), drug crimes (18%), violent crimes (16%), sexual crimes of a violent nature (12%), and other crimes (26%). Conversely, 35% of veterans in prison were sentenced to incarceration for sexual crimes of a violent nature, 29% for other violent crimes, 14% for drug crimes, and 12% for other crimes. Compared to non-veterans, when sexual crimes of a violent nature and other violent crimes are considered, veterans are, proportionally, more likely to be sentenced to prison for violent criminal offending.

It is worth noting that the overrepresentation of veterans who have committed a violent offense in prison and jail may be at least partially due to data limitations and structural considerations. As previously noted, there are concerns regarding the fidelity of veteran status indicators across numerous state prison systems (Brown et al., 2013).

While such concerns may not be enough on their own to meaningfully inflate the prevalence rate of violent offending among incarcerated veterans, taken with structural considerations, which are purposefully designed to divert veterans from incarceration, they may disguise the true nature of offending among veterans. These structural considerations are predominately represented in the form of veteran treatment courts (VTC). While veterans are able to participate in numerous variations of specialty and treatment courts such as homeless-, drug-, mental health-, and other courts, VTCs particularly target veterans for diversion from traditional criminal justice pathways (Russell, 2009). The first VTC in the United States was launched in 2008, and as of 2018, there were approximately 460 VTCs across the country in approximately 42 states (Tsai et al., 2018). Of particular interest is the requirement for most VTCs that clients are not convicted of violent or sexual crimes (Clark et al., 2013; Johnson et al., 2016). Rather, most of these courts focus on serving veteran clients who have been convicted of crimes that are associated with mental health, drug use, and potentially, the downstream effects of participation in combat (Johnson et al., 2016). As such, VTCs, by design, divert non-violent offenders from traditional criminal justice interventions such as incarceration. A small but growing body of evidence suggests that VTCs are extremely successful in accomplishing this goal (Clark et al., 2010; Russell, 2009; Tsai et al., 2018). It is not necessarily surprising that there is an overrepresentation of veterans who have committed crimes that are violent or of a sexual nature within the prison population.

Why Veterans Offend: The Violent Veteran Model and Self-Medication Hypothesis

A developing etiology in veterans' research suggests that mental health, drugs, and combat influence criminal offending. Within the contemporary military, deployment

to combat zones in support of GWOT operations is relatively commonplace. Figures from the Department of Defense suggest that those who served during the Post-9/11 era have been deployed more frequently than service members from preceding military eras (Vespa, 2020). Despite the fact that the overwhelming majority of Post-9/11 veterans deploy one or more times during their tenure in the military, combat is relatively less common (Parker et al., 2019). However rare combat may be, it is a commonly desirable measure in JIV research for a number of reasons: (1) it is easily dichotomized; (2) the military and other organizations keep structured records of combat; (3) it can be collected from respondents with as few as a single question on a survey; and (4) the deleterious effects of combat can be easily imagined. There is little doubt that the visceral experiences of battle have long-standing psychological consequences, which may manifest into mental health issues and result in undesirable outcomes later in life.

Perhaps due to the easily perceptible nature of the downstream effects of combat, much of the literature in this area has operationalized combat experiences in one manner or another, focusing on this event as an explanation of criminal justice engagement among JIVs. This has resulted in measures of combat being centered in much of the veteran crime literature (Culp et al., 2013; Elbogen et al., 2012; Snowden et al., 2017; Van Dyke & Orrick, 2017; White et al. 2012). Despite the heavy focus on combat in the prevailing literature, it is important to note that the unique nature of deployments to combat zones – which are less frequently examined, warrants further investigation. As such, the following section will examine how: 1) combat; 2) deployments; 3) mental health issues; and 4) substance use may influence offending patterns and subsequent criminal justice engagement among veterans.

As previously noted, much of the existing veteran literature is centered upon combat experiences. Research in this area generally finds that veterans who serve in combat are more likely to experience mental health problems (Bremner et al., 1996; Gurvits et al., 1996; Kelley et al., 2019), which are directly correlated with criminal justice involvement (Andrews et al., 2006; Baillargeon et al., 2010; Tsai et al., 2013), and highly comorbid with the manifestation of substance use disorders (SUD; Baillargeon et al., 2010; Jeffirs et al., 2019). Further, substance use is often a criminal act or occurs alongside associated patterns of offending such as acquisitive crime (Håkansson & Jesionowska, 2018; Stewart et al., 2000) and is therefore directly associated with offending. Such patterns are representative of the primary nexus of offending among veterans, which is presented in the broader literature. While most research in this area is largely observational in nature, an emerging body of research attempts to explain these pathways towards offending in greater detail. Where combat, mental health, and substance use are concerned, the Self-Medication Hypothesis (SMH) has been applied to understand the causal pathway demonstrated by this portion of the nexus related to drug and associated crimes (Awad & Voruganti, 2015; Blume et al., 2000; Khantzian 1985; 1997). While the SMH provides a generally satisfactory explanation of veteran offending through drug use, this framework has limitations, which will be discussed later in this section. Alternately, the Violent Veteran Model (VVM) provides insight into how the milieu of military culture and the combat environment coalesce to make violent offending among veterans more likely. While the SMH and VVM are the prevailing theoretical paradigms used to examine veteran offending, both are limited in different respects. As

such, it may be prudent to unify these perspectives and expand the scope of factors that concern offending and criminal justice engagement among veterans.

The Violent Veteran Model

The Violent Veteran Model is often applied to veteran research in the criminal justice field. In 1976, Archer and Gartner published a seminal piece, “Violent Acts and Violent Times: A Comparative Approach to Postwar Homicide Rates.” This work is most commonly attributed to the formation of the VVM. In their work, the authors examined violent crime increases in post-war periods across numerous conflicts and countries and found support for the notion that war increases aggregate crime rates. Pointedly, the authors suggest that the normalization of violence among veterans increases the likelihood that they will engage in violent crime (e.g., assault, homicide, etc.) or use violent methods which are ancillary to the accomplishment of criminal acts (e.g., striking a victim during a mugging, brandishing a weapon during a robbery). Originally, researchers in this area suggested that the normalization of violence among veterans was accomplished through exposure to combat and the refinement of proficiency of violence through combat (Archer and Gartner, 1976; Rohlfs, 2010).

Researchers have recently reoriented the VVM from a macro-level (Archer and Gartner, 1976) to an individual-level explanation of criminal offending among veterans (Van Dyke & Orrick, 2017). There is a substantial body of individual-level research that indicates that veterans are disproportionately involved in violent behavior and crime (Bronson et al., 2012; MacManus et al., 2012; Orcutt et al., 2003; Short et al., 2018; Van Dyke & Orrick, 2017; White et al. 2012). Conversely, much of the existing macro-level research (Stamatel & Romans, 2018; Rofls, 2010; Willbach, 1948) and some individual-

level research (Van Dyke & Orrick, 2017) in this area fails to find sufficient evidence wholly supporting the VVM. This may be due to measurement limitations within the prevailing literature. For example, important factors are known to influence criminal offending among veterans (Baillargeon et al., 2010; Calhoun et al., 2005) and broader populations (Andrews et al., 2006; Baillargeon et al., 2009), such as mental health and substance use. However, these factors have not always been examined in research that applies the VVM (e.g., MacManus et al., 2012; Orcutt, King & King, 2003; Van Dyke & Orrick, 2017). This is especially problematic as substance use and mental health have been found to be strongly correlated with both one another and combat experiences (Orcutt et al., 2003).

The Self-Medication Hypothesis

There are a variety of traumas that may result in veteran engagement in substance use to cope; however, the prevailing focus of this literature related to military service has been largely centered upon self-medicating to abate the psychological consequences of combat experiences. In previous work, this has been explained through the self-medication hypothesis (Khantzian, 1985; 1997). Originally applied to the broader population of those engaged in substance use, the SMH posits that individuals engage in substance use of various modalities to abate psychological suffering (Khantzian, 1997). Further, the modality of substance use individuals engage in is predicated upon *psychopharmacological specificity*. That is, individuals engage in the use of drugs that are appealing to them, where the main effects of the drug, individual personality characteristics, and nature of their psychological suffering are concerned (Khantzian, 1997). In the last two decades, the SMH has been applied specifically to veteran samples,

and there is now evidence that alongside ameliorating the psychological trauma of combat, veterans may also, to a lesser extent, engage in substance use to treat the negative acute and chronic physiological effects of service such as somatic symptoms from combat injuries and PTSD (Livingston et al., 2021; Loflin et al., 2017; Possemato et al., 2015; Shipherd et al., 2005).

The vast majority of veteran substance use literature focuses on the intersection of substance use, mental health, and combat experiences. Research in this area finds that PTSD, SUDs, and/or the use of numerous substances are highly comorbid (Baillargeon et al., 2010; Bonn-Miller et al., 2012; Jeffirs et al., 2019). There is a breadth of research implying that combat indirectly influences substance use and the subsequent onset of SUDs through intermediary mental health outcomes such as PTSD, depressive-, and general anxiety-disorders (Chin & Zeber, 2020; Eisen et al., 2012; Harvey et al., 2011; Johnson et al., 2007; Kelley et al., 2019; Possemato et al., 2015; Smith et al., 2007; Solomon et al., 1988; Stevelink et al., 2015; Vazan et al., 2013; Williamson et al., 2019). Because PTSD and depressive disorders are most common among military members and veterans (Trivedi et al., 2015), these conditions are most commonly observed within this context. Findings in this area are largely supportive of the SMH and suggest that veterans or service members primarily engage in substance use to cope with or manage depressive symptoms or, more commonly, hyperarousal (Bremner et al., 1996). Further, other work has indicated that substance use is initiated among veterans to lessen the negative consequences of negative affect and sleep disturbances among veterans (Gentes et al., 2016; Metrik et al., 2016), which are strongly associated with PTSD. It is also important to note that pre-deployment substance use (notably alcohol misuse) may be a signal for

maladaptive coping strategies, which leads to a higher risk of self-medicative behaviors after deployments or combat (Schumm & Chard, 2012). Such findings suggest that not only does mental health play a role in the development of SUDs, but previous substance use may as well.

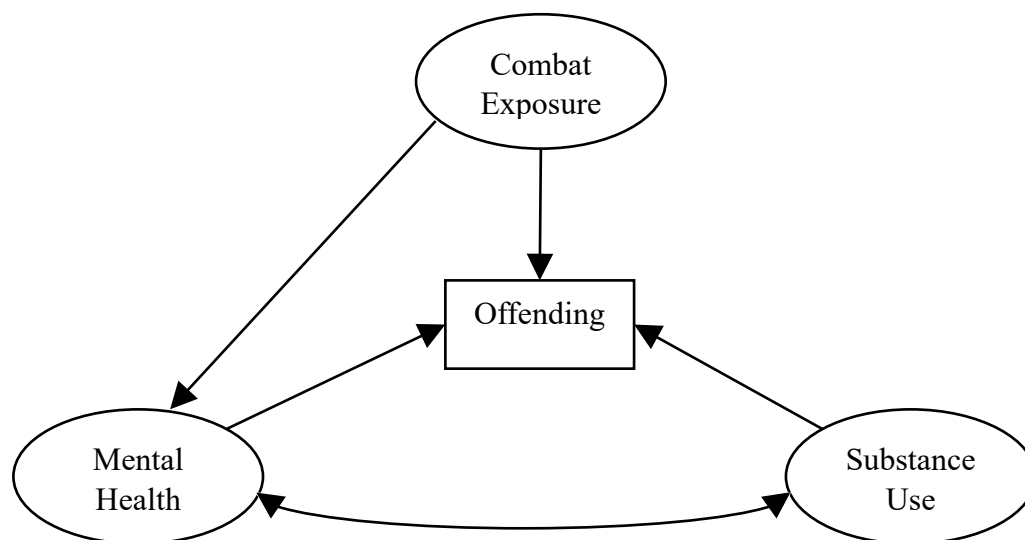
Through the SMH, insight is gained into the causal pathways of the relationship between combat, mental health, and substance use. While research on mental health and substance use among veterans is primarily observational in nature, the findings indicate that service members and veterans who experience traumatic events, such as those associated with combat, are more likely to develop mental health issues such as depression and PTSD (Bremner et al., 1996; Jankowski et al., 2004). Further, veterans with mental health issues are also more likely to engage in substance use (Jeffirs et al., 2019). Khantzian's (1985) SMH suggests that this may be the observation of a common phenomenon. That is, service members experience combat, are exposed to trauma during combat, develop mental health issues due to that trauma, and then subsequently engage in substance use to ameliorate the negative effects of mental illness.

There are, of course, caveats for the nature of this relationship which have been identified in more recent research. As previously stated, alcohol is the most commonly used substance among service members and veterans. In many studies, combat exposure is strongly correlated with substance use outcomes (Kelley 2019b; Larson et al., 2012; O'Toole et al., 2020; Wilk et al., 2010). Yet, other research has found conflicting results of the SMH (e.g., Possemato et al., 2015; Shipherd et al., 2005). As a result, there may be doubts regarding the veracity of the SMH as it relates to combat and alcohol use. However, measurement issues and study design may account for disparate findings where

Alcohol Use Disorders (AUD) are concerned. This is because most research on substance use among veterans is cross-sectional in nature and somewhat simplistic in design, employing traditional regression strategies and few interaction effects. It may be the case that commonly applied research strategies fail to account for the indirect effects of combat on AUD – and that there are weak or non-existent direct effects. Support for this standpoint and the SMH as a whole are found in research which suggests that combat does not increase the risk of alcohol use among veterans, but the presence of PTSD or depressive symptoms nearly doubles it (Jakupcak et al., 2010).

Unifying the Violent Veteran Model and Self-Medicating Hypothesis

One way to ameliorate the methodological limitations and gaps in both the SMH and VVM may be to establish a unified framework using both perspectives to examine the nature of offending among veterans. Figure 1 presents a basic representation of how a nexus of veteran offending may be visualized if formed from the self-medication hypothesis and the violent veteran model.

Figure 1*The Nexus of Veteran Offending*

The initiation event or key exogenous variable in this model is combat exposure. As presented, combat exposure both directly influences offending as well as indirectly through mental health outcomes and substance use. Mental health outcomes and substance use are related through a recursive relationship, but both factors influence offending directly as well. While the visualization of this phenomenon is novel, the concepts provided in Figure 1 are not, in themselves, new to researchers. Rather, the breadth of the veteran literature suggests that this relationship is what most observational research captures either in part or in whole, with little countermanding evidence.

The Correlates and Pathways to Offending Among Veterans

Military Experiences: The Normalization of Violence and Trauma

The military culture, as observed through training and common military experiences, may normalize violence. The military is a total institution (Higate, 2001), wherein young men and women from diverse backgrounds are purposefully trained and conditioned to be warfighters sharing a common ethos (Martin et al., 2006). Prior research has indicated that due in part to the moral ethos, which is rigidly imposed on service members, the military acts as a turning point resulting in desistance from crime (Sampson & Laub, 1996). More specifically, in this vein of research, it is suggested that joining the military results in a “knifing off” of existing delinquent social ties and the formation of new behavioral expectations, which results in reduced offending and subsequent criminal justice involvement (Caspi & Moffit, 1993; Sampson & Laub, 1996). However, much of the preceding research in this area may be hampered by observing a very different military that existed before the GWOT, dealt with different challenges, and had different expectations of service members.

Training for Modern Warfare

A key role of the military is preparing soldiers for combat through training. While the overarching purpose of the military is to defend U.S. interests at home and abroad, within combat environments, the prevailing goal of all service members is to “locate, close with, and destroy the enemy” (Department of Defense, 2020) or to provide instrumental support for others to do so.

Military service members are training through rifle ranges, hand-to-hand combat training, bayonet courses, live fire, and field exercises to wield great violence with the

tools of their trade (e.g., rifles, machine guns, and pistols), as well as their bodies. For many, this is done to the degree that responses to physical violence may become effortless, if not autonomic and Brown (2008) makes note that “For many who excel at weapons training, resorting to the use of a weapon is similar to the professional table tennis player who automatically reacts when an opponent hits a ball” (p.22). However, it is important to note that military service members are subject to extensive regulations and laws which dictate their rules of engagement (known as rules of engagement; ROE) and the use of both lethal and non-lethal force (*see* Department of Army, 2019; United States Marine Corps Training and Education Command, 2019)¹. From entry into basic military service, ROE are “drilled” into service members and form the foundation for critical decision-making processes, which are instilled in service members. The cumulative effect of this training is the development of soft and technical skills, which enable service members to determine when violent action is appropriate and how to engage in such courses of action. Despite ROE, there is substantial evidence that the conditioning of a predisposition towards violence by virtue of military training increases the likelihood that veterans will engage in violent crime (MacManus et al., 2012; 2013; Rohlfs, 2010), which provides general support for the VVM.

Experiencing Combat

If military training is the conditioning of skills necessary to engage in violence, combat is the ultimate practice of such skills. While most military vocations are not oriented towards directly engaging the enemy in close combat, the rise of asymmetric

¹ These are condensed versions (approximately 208 pages) of the Department of Defense’s Law of War Manual (2019) which currently consists of 1,176 pages which detail rules of engagement for service members in combat.

warfare in recent years, notably in Iraq, Afghanistan, and Contiguous Africa has perhaps, redefined the understanding of who participates in combat in the contemporary military. Further, research has indicated that lower-enlisted, married, female soldiers were the troops in the Army who were most at-risk to be killed or injured in combat in Afghanistan or Iraq (Ozcan, 2012). These findings are contrary to the conventional understanding of *who does* combat. This may be due, in part, to the fact that while deployed in combat zones, any service members may become engaged in combat at nearly any point in time².

Engaging in combat and meeting the goals of closing with and destroying the enemy have consequences for individual soldiers. For example, research finds that killing in combat is associated with higher levels of rumination (e.g., counterfactual thinking, anticipatory, and repetitive thoughts, etc.) which are associated with negative mental health symptomology and substance use (Kelly et al., 2019). Further, killing in combat is also correlated with increased PTSD symptomology and suicidal ideation (Maguen et al., 2011). Aside from killing, combat may have stressful or traumatic events nested within, such as injury or witnessing comrades and civilians killed (Chin & Zeber, 2020; Forbes et al., 2020; MacGregor et al., 2009). Injuries sustained in combat are suspected in the broader literature to cause or exacerbate existing mental health issues among service members and veterans (Chin & Zeber, 2020; MacGregor et al., 2009). As will be discussed in the next section, the downstream effects of poor mental health outcomes related to combat may increase the likelihood of engaging in criminal offending through substance use and associated crimes, which provides empirical support for the SMH.

² This *uncertainty principle* is a key component of contemporary military doctrine (Due et al., 2015).

Additionally, the practice of violence in combat may condition the notion that violence is an acceptable conflict resolution among individuals who experience it. As previously mentioned, this supposition is the core of the VVM (Archer & Gartner, 1976). Numerous studies have indeed proffered evidence that this is the case, suggesting that those who experience combat are more likely to engage in higher rates of post-deployment physical aggression or violent offending such as domestic violence and other violent crime (MacManus et al., 2012, 2013; Maguen et al., 2011; Purcell et al., 2016; Schaffer, 2010). A recurrent theme among studies within this literature is that PTSD mediates the relationship between combat and subsequent violence or aggression (Brown et al., 2013; Livingston et al., 2021; Orcutt et al., 2003). Considering the nature of this research which has examined the linkage between combat, PTSD, and subsequent violent behavior across service members and veterans engaged in numerous conflicts, there is little question as to whether this is an enduring phenomenon. Despite this, little research has examined whether combat exposure has direct- or indirect-effects mediated by mental health factors on non-violent offending.

Taken together, there is a dearth of research focusing on combat as a key event that influences outcomes in a manner supportive of the VVM and SMH. However, it is important to note that within both models, there is little evidence that the direct effects of combat substantial influence later criminological outcomes. Rather, the influence of combat on these outcomes is mediated by intermediary factors, namely those related to mental health.

Deployments and Stress

The existing JIV literature has traditionally placed emphasis on combat as the primary military experience correlate of offending. However, the majority of service members do not experience combat. Take, for example Post- 9/11 veterans, who constitute roughly 18% of all veterans within the United States (Vespa, 2020) and are more likely to have deployed to a combat zone than veterans of preceding service eras. Around 77% of Post-9/11 veterans have deployed to a combat zone (Parker et al., 2019). Conversely, of those who have deployed, only around 49% experience combat. To clarify, this suggests that around 37% of GWOT-era service members have experienced combat. This is mirrored among incarcerated veterans, who are more likely to report that they have not experienced combat (Bronson et al., 2015). Such findings suggest that deployments are more somewhat normative events for service members, especially when compared to the combat experiences nested within them.

While the effects of deployments on subsequent offending are less frequently examined in the criminological literature (Elbogen et al., 2012; White et al., 2012) or disentangled from the effects of combat (MacManus et al., 2012), there is reason they may be important in understanding the pathways to offending among veterans. This can be characterized by the stress that deployments cause service members to experience. There are two primary forms of stress which individuals may experience during their military service: 1) combat stress and 2) operational stress (Department of Defense, 2020). Combat stress reactions (CSR) may lead to acute stress response within the combat environment, whereas reactions to more sustained chronic stress may manifest as operational stress reactions (OSR). CSRs most often trigger a shutdown or arousal by the

parasympathetic and sympathetic components of the autonomic nervous system in response to stressors such as: 1) being injured; 2) the death of comrades; 3) witnessing the deaths of civilians; or 4) participating in the killing of enemy combatants. Results of exposure to these events cause defense cascades which are acute changes to psychological functioning (Kowlowska et al., 2015), which may last for seconds, minutes, hours, or days.

Conversely, OSRs are those which result in long-term exposure to chronic stress among individuals. These include: 1) environmental; 2) work-related; and 3) separation-related stress. Environmental stress refers to the environment in which service members encounter and live in while on deployment. This takes numerous forms and can range from the stress caused by poor living arrangements and access to personal hygiene facilities to a lack of ability to recreate and exposure to environmental factors such as weather or toxic agents. Work-related stress is that which occurs in reaction to the often high-operational tempo and working environment service members experience. Factors that influence work-related stress may be long work hours, physically demanding labor, lack of sleep, and even the uncertainty of being engaged in combat. Finally, separation-related stress is that which occurs due to the disruption of family and broader social support networks while deployed. This stress may result in the deterioration of marital or other interpersonal relationships through lack of communication or stress occurring from uncertainty of deployment and return dates.

While the terms coined for CSR and OSR help to distinguish the potential sources of stress for servicemembers, information on the long-term impact of stress is best understood in the broader medical literature. Research in this area finds that stress affects

numerous systems of the body, including the musculoskeletal, respiratory, cardiovascular, endocrine, nervous, and reproductive systems (Steptoe, 1991). Of particular interest within the current project is the relationship between stress and the endocrine system. When individuals encounter stressful situations, the hypothalamus-pituitary-adrenal (HPA) axis mobilizes in the form of the secretion of hormones, such as cortisol, to allow the body to quickly manufacture energy, reduce inflammation and boost the immune system (Doruk & Mohsin, 2019). Long-term overexposure to stress may, in turn, ‘chronically mobilize’ the HPA (Cicchetti & Walker, 2001, p.414), which can then have negative long-term consequences on the body (Padilla, 2021).

The biological consequences of stress occur through hyper- and hypocortisolism, neuronal atrophy, and neuroendangerment. Most of these outcomes are the result of the dysregulation of cortisol production in the body. Hypercortisolism occurs when the body produces too much cortisol (Stratakis, 2012), whereas hypocortisolism (Thaller et al., 1999) is the result of the body producing too little cortisol. Hypercortisolism through the overproduction of human glucocorticoid hydrocortisone (HGC) may result in pathogenic effects on neurons in the brain (Vaszquez, 2001), observed through the atrophy of the hippocampus, which has been found to be comorbid with PTSD among veterans (Gurvits, Pitman et al., 1996; Stein et al., 1997). However, chronic mobilization of the HPA can also cause the body to reduce cortisol production (Thaller et al., 1999), which leads to hypocortisolism which, in turn, also may result in an increased likelihood to develop stress-related disorders through the impairment of cognitive functioning, memory, and neuroendocrine regulation (Cicchetti & Walker, 2001). Research has suggested that

hypocortisolism is associated with the onset of PTSD, as well as other anxiety and depressive disorders (Cicchetti & Walker, 2001).

It is important to note that deployment experiences and, as a result, deployment-related stress is widely variable among service members. However, there is a body of research that indicates that stress directly influences mental health outcomes through biological processes, which may be variable in nature (Stetz, 2007) and is, therefore, generally supportive of the deployments as a necessary component of SMH models which examine veteran samples. Because chronic and acute stress may be induced by both combat as well as other long-term events service members may experience, there is a need to directly examine the effects of deployments alongside, rather than in lieu of, combat within veteran samples.

It is important to note that within the criminological literature, there is no work known to the author that examines how CSRs and OSRs influence subsequent criminal offending. This is likely due in part to the availability of data on this topic – as the data used in criminological studies is often collected well after service members have deployed and left the military. One possible way to circumvent this issue is the capture the proximal cumulative effects of CSRs and OSRs among veterans. Because the effects of stress are cumulative (Cicchetti & Walker, 2001), it would be expected that all else equal, those who experience longer amounts of time deployed, experience more OSRs and CSRs alongside their negative physiological and psychological consequences. While there is limited precedence of examining the length of time service members experience deployed within the criminological and substance use literature (Elbogen et al., 2012;

Spera et al., 2011), it may be the case that to some degree, these measures are capturing stress accumulated during these events and individual response to them.

Health

The Prevalence of Physical and Mental Health Problems in Veterans

Physical and mental health problems are common among veterans as compared to the general population. The U.S. Department of Veterans Affairs (VA) broadly defines a service-connected disability as: a diagnosed disease or injury incurred in or aggravated by service, which results in a decreased earning potential. Service-connected disabilities range from physiological issues such as amputations, respiratory issues, and neurological disorders, to psychological issues such as depressive, anxiety, and schizoaffective disorders. Because information regarding service-connected disabilities is relatively well-tracked by the VA through various research studies, they may provide the most effective method of determining the degree to which health problems are present among veterans and, as a result, are prevalent in the veteran crime literature. It should be no surprise that combat has potentially deleterious effects on health. In recent years, the broader physiological and medical literature has focused heavily on the effects of combat on various health outcomes as well.

While there is an established body of literature that has examined the influence of combat on behavioral, psychological and physiological outcomes (Baker, 2014; Boos et al., 2019; Bremner et al., 1996; Chin et al., 2020; Gurvits et al., 1996; Hoopsick et al., 2018; Kelley et al., 2019a; 2019b; Koren et al., 2005; O'Toole et al., 2020; Possemato et al., 2015; Rohlfs, 2010; Solomon et al., 1988; Wilk et al., 2010), only a relatively more modest literature has focused on how deployment environments, aside from combat,

might affect such outcomes (Boos et al., 2019; Eisen et al., 2012; Forbes et al., 2012; Harvey et al., 2011; Larson et al., 2012). Much of that which does exist examines the deleterious impact of burn pits on respiratory health (Boos et al., 2019; Cohen et al., 2009), criminal justice behavioral health outcomes (Eisen et al., 2012; Larson et al., 2012), or deployment stress and events on psychological outcomes (Forbes et al., 2012; Harvey et al., 2011; Schumm & Chard, 2012). Further, despite the fact that combat experiences are inherently stressful events, in which service members may be exposed to chemicals through improvised explosive devices, friendly munitions, and other environmental hazards, relatively little of this literature disentangles the effects of combat experiences while deployed from actual deployment events themselves.

Physical Health Problems Lead to Mental Health Issues

There is evidence in the broader literature that physiological and mental health influence one another (Hays et al., 1994; Ohrnberger et al., 2017). Each form of health has significant direct and indirect effects on the other which are mediated to varying degrees through factors such as lifestyle choices, social interactions, and physical activity (Ohrnberger et al., 2017). While the vast majority of research in this area has not been structured to target veterans, emerging research suggests the relationship between mental and physical health is an important factor to consider, especially among service members who have been injured in combat (Forbes et al., 2012; Kwako et al., 2011).

As of 2018, approximately 1.5 million, or 39% of veterans who have served in the All-Volunteer Force (AVF) during the period after 9/11 have service-connected disabilities (Vespa, 2020). This demonstrates a marked increase in health problems connected to individuals' military service from that seen among Vietnam (26%) and

Second World War (14%) veterans. Further, when demographic characteristics are accounted for, Post-9/11 veterans remain the most likely to experience service-connected disabilities out of all groups of veterans. This may be the case for various reasons. For example, existing research has indicated that medical advancements which occurred in the interim between the Vietnam War and the onset of the GWOT may have increased the likelihood that service members would survive battlefield injuries which would have previously been fatal (Goldberg, 2010). The changing nature of contemporary asymmetric warfare has resulted in different types of injuries being sustained and survived by service members. Specifically, Baker (2014) notes that as compared to previous conflicts, “the Hallmark injury of the GWOT is the massive blast injury – penetrating fragment wounds, burns, toxic inhalation, blast overpressure, and kinetic collision with stationary objects” (p. 349). While such injuries were not uncommon in combat before the onset of the GWOT, more recent advances in battlefield medicine which include embedding first responders into every combat patrol, training most troops as “combat lifesavers,” as well as the use of newer, more advanced, medical tools and training, has increased the survival prospects of soldiers from injury sites to definitive care locations such as combat hospitals as well as surgical suites, and later, to more advanced medical resources outside of combat theaters (Baker, 2014).

While the net result of advances in modern battlefield medicine technology has been fewer casualties, there may also be unforeseen consequences. For example, one of the most common battlefield injuries is Traumatic Brain Injury (TBI). TBI is found to be highly correlated with the onset of mental health issues such as PTSD, (Forbes et al., 2012; Hoge et al., 2004; 2008; Kwako et al., 2011; MacGregor et al. 2009; Schneiderman

et al., 2008; Vasterling et al., 2009) as well as later behavioral outcomes such as intimate partner violence (Kwako et al., 2011). Further, experiencing any type of battlefield injury is potentially traumatic. This is supported by research which finds that any type of acute injury is correlated with PTSD (Chin & Zeber, 2020). Systematic reviews find that mental health disorders are relatively common among veterans with a variety of physical impairments (Stevellink et al., 2014). Specifically, service members who are injured while on deployment are more likely to engage in substance use or develop PTSD (Forbes et al., 2012; Hoge et al., 2004; Koren et al., 2005; MacGregor et al. 2009; Wilk et al., 2010). Considering this, medical advancements over the last several decades have brought forth a “double-edged scalpel.” That is, service members are more likely to survive substantial combat injuries, but those service members are also significantly more likely than those who are uninjured to experience poor mental health outcomes.

Psychological Issues Condition Criminal Justice Engagement

Psychological issues increase the likelihood that veterans will become engaged with the criminal justice system. Taken altogether, there is a large and growing literature which has documented the effects of combat on both physiological and psychological health outcomes. To a lesser extent, research in this area has also examined how deployment environments themselves may influence service member health outcomes. While the physiological repercussions of combat themselves have unique and meaningful impacts on the lives of those affected, they are also correlated with psychological outcomes for service members (Hoge et al., 2008; Kwako et al., 2011; Schneiderman et al., 2008; Vasterling et al., 2009). While some physiological outcomes, such as “phantom pains,” may be more directly attributable to injuries sustained in combat such as

amputations (Ketz, 2008), the literature is less clear as to whether psychological outcomes are predicated more or less on the experiences which led to soldiers' injuries. Indeed, losing a limb from an IED during a firefight is a traumatic event, which is likely to have a longstanding psychological impact such as PTSD aside from the physical consequences (e.g., neuronal misfires which result in phantom pains). The degree to which an amputation is later directly attributed to stress, depression, anxiety, and other psychological outcomes, however, is less clear. Despite this, research is clear in this area insofar as there is evidence that the injuries sustained in combat both influence psychological outcomes immediately and in the future (Chin & Zeber, 2020). Further, there is an increasingly complex body of literature developing which has demonstrated that physical health issues sustained on deployments and in combat have indirect effects on mental health outcomes (Chin & Zeber, 2020; Cohen et al., 2009; Forbes et al., 2012; Jakupcak et al., 2008; Kelley et al., 2019; Vasterling et al., 2009), which in turn are directly correlated with subsequent substance use (Chin & Zeber, 2020; Forbes et al., 2012; MacGregor et al., 2009). Considering this alongside the implications of the SMH, it is important to consider the role both physical and mental health play in relation to substance use within any etiological model which examines offending among veterans.

Substance Use

The Prevalence of Substance Use in Veterans

Substance use is prevalent among the veteran population. Alongside footage of jungle warfare, the deployment of Agent Orange, and U.S. Military patrol boats moving through the Mekong River Delta, perhaps the most widely proliferated images of U.S. Soldiers in the Vietnam War is that of service members using Winchester Model 1912

Shotguns as makeshift pipes to smoke marijuana. The phenomena of drug use in the military is not relegated only to those conflicts which took place before the formation of the AVF. Rather, there are numerous contemporary examples of service members engaging in illicit substance use both at home and abroad. Further, substance use and substance use disorders have been identified as one of the most prominent issues among veterans (Barlas et al. 2013).

Substance use is particularly central to veteran research for several reasons. First, veterans are more likely than civilians to engage in substance use (Wagner et al., 2007) and, as a result, develop a substance use disorder (Hoggatt et al., 2017). When samples of veterans and non-veterans are compared along with the types of SUDs they may develop across their lives, findings indicate that veterans are significantly more likely to develop tobacco use disorders (TUD), alcohol use disorders (AUD), and cannabis use disorders (CUD; Boden & Hoggatt, 2018). Further, higher proportions of veterans, as compared to civilians, develop club drug- heroin-, opioid-, sedative-, and stimulant-use disorders. While relatively fewer members of the active military develop SUDs as compared to veterans, abstinence from substance use is not universal among military samples. For example, researchers have found that between 1 and 2% of the military engage in illicit substance use, whereas approximately 17% of veterans have a diagnosed SUD (Barlas et al., 2013; Boden & Hoggatt, 2018; Bray et al. 2009). Further, due to the widespread prescription practices of opioids and other drugs for pain management among military personnel, there is potential concern for the misuse of prescription medication among this group. Current studies estimate between 1 and 12% of active-duty military personnel and

3 to 5% of veterans engage in prescription medication misuse (Barlas et al., 2013; Bray et al., 2009; Hoggat et al., 2017).

While prescription medication misuse and illicit drug use are focal points of the broader substance use literature, the focus on veterans has noted the substantial risk of AUD development among veterans (Barlas et al., 2013; Bray et al., 2009; Hawkins et al., 2010). In fact, alcohol is the most widely used substance among active military members and veterans (Bray et al., 2009; Hoggat et al., 2017; Morden et al., 2013; Seal et al., 2011; Vazan et al., 2013). Studies estimate that between 20 and 39.6% of service members and 19 to 29.3% of veterans engage in binge drinking behavior (Barlas et al., 2013; Bray et al., 2009; Hoggat et al., 2017), which may be the most salient risk factor for developing an AUD. The high rate of binge drinking among military members and veterans is not surprising, as alcohol use is largely permissible in both civilian and most military contexts. However, one potential result of this behavior is that prevalence rates of AUD are approximately 11.3% among active service members and range from 6.2 to nearly 20% among veterans (Barlas et al., 2013; Hawkins et al., 2010; Hoggatt et al., 2017). This is in stark contrast to the prevalence rate of AUD among the general population which has ranged from 8 to 9% over the last two decades (Lipari & Van Horn, 2017). These figures are important in illustrating the scope of substance use among the military and veteran population. However, when one considers that the stigma associated with seeking mental health treatment among military personnel (Jones et al., 2015; Kim et al., 2010), alongside limited drug screening opportunities for veterans (Seal et al., 2011) and the consequences for self-reporting substance use among active military personnel (such as demotion, loss of pay, or unfavorable discharge), it is likely that both

prevalence estimates of substance use and SUD among the military and veterans are underreported. In spite of this, such estimates may be meaningful for both examining the correlates of SUD as well as tracking substance use over time in populations of service members and veterans.

Regardless of the stability of drug use as a *problem* among veterans of different combat eras, it may be the case that the *nature* of substance use among service members is *unstable*. To elaborate, numerous projects have found that there is an increased prevalence of SUD among GWOT veterans as compared to veterans of the Vietnam War (Seal et al., 2011). This may be due in part to the increased likelihood that GWOT/ Post-9/11 veterans have experienced combat, as compared to those who served in earlier time-periods (Vespa, 2020). Indeed, there is a breadth of work which suggests that combat exposure is associated with increased risk of alcohol problems (Hawkins et al., 2010; Shipherd et al., 2005; Wilk et al. 2010), illicit substance use (Bremner et al., 1996; Eisen et al., 2012; Hawkins et al., 2010; Hoopsick et al., 2018; Shipherd et al., 2005), and prescription medication misuse (Kelly et al., 2019; Mowen et al., 2020; Tam et al., 2020).

Substance Use Conditions Criminal Justice Engagement

Substance use conditions the likelihood that veterans will become engaged in the criminal justice system. It is important to note that the use of illicit substances and misuse of prescription medication are, to varying degrees, criminalized across jurisdictions in the United States. Substance use also often requires the handling of illicit substances and paraphernalia, the possession of which can be a crime in itself (Håkansson, A., & Jesionowska, 2018; Stewart et al., 2000). Coupled with associated offending such as acquisitive crime for the purpose of financing substance use, or driving under the

influence (Stewart et al., 2000), substance use is often either criminal in nature or nested within a greater context of behavioral patterns which may lead to offending. Further, there is strong evidence in the literature that substance use is correlated with violent crime and disorder (White, 2016), which may lead to more serious offending.

Considering this, it may be useful for extensions of the SMH to trace origination events such as combat, across pathways to mental health, and substance use as first-order outcomes, to second-order outcomes such as other types of criminal offending or criminal justice engagement.

While such research would be instrumental in developing the understanding of the causal pathways to and from substance use among veterans, the reciprocity between substance use and other factors should also be considered. For instance, substance use and SUDs are shown in past research to be highly correlated with unfavorable mental health outcomes. While it has been difficult to establish initial causal ordering in much of the literature in this area, much of the research does indicate that SUD compounds the negative effects of existing mental health issues and may contribute to the onset of new mental health disorders (Fontenelle et al., 2011; Ross & Peselow, 2012). Conversely, having one or more mental health disorders may also increase the likelihood an individual will engage in substance use (Baigent, 2012). While little research has specifically been aimed at the veteran population, there is little reason to believe that the effects of SUD among veterans is divergent as compared to the general population. Rather, it is likely that the contribution of mental health issues as manifested through combat and deployment experiences may further compound SUD issues and result in a more deleterious reciprocal relationship between the two. Taken together, with the

proclivity of the military to prescribe narcotics for pain management (Teeters et al., 2017), alongside the well-documented self-medication for the psychological and physiological consequences of combat (Possemato et al., 2015; Shipherd et al., 2005), and relatively extreme levels of alcohol use, as compared to the general population (Fuehrlein et al., 2016), it is likely that certain veterans are at greater risk of developing SUDs and that this risk is substantially greater than civilian counterparts.

Providing a Revised Framework for Veteran Offending

Addressing Deployments

As previously stated, there is a breadth of literature which examines criminal justice engagement among veterans. There is also a large and growing body of research external to the criminal justice field that examines outcomes which are related to combat, such as mental health and substance use, that have also been found to be important where criminal offending is concerned. Despite this, there is relatively little research examining the effects of deployments on criminal justice outcomes among veterans. These experiences may be important to measure because research has established that they have direct effects on mental health, a key component of the SMH and potential mediator in VVM. To clarify, using the VVM and SMH framework, it would be expected that the direct effects of deployments on outcomes such criminal offending are negligible (but not unimportant). Rather, using a unified variant of these etiological perspectives, one would expect that deployments have significant indirect effects on offending through mental health issues and subsequent substance use.

As previously mentioned, it may be difficult to measure OSRs and CSRs retrospectively within populations of veterans. Instead, proximal measures may be

sufficient to capture the cumulative effects of OSRs and CSRs accumulated on deployments throughout veterans' careers. One way to capture the relative level of these stressors may be continuously codified measurements of time deployed which is easily captured using official records or in primary data analysis. In implementing these measures, it would be expected that those who have experienced more time deployed are more likely to experience mental health issues and therefore more likely to engage in substance use (which compounds mental health issues) and, as a result, are more likely to engage in criminal offending – be it drug-related crimes or others.

Extending Measurement Through Multidimensional Constructs

Simply put, in veteran-focused and broader criminal justice research, there is a need to extend measurement through the use of multidimensional constructs. That is, the modal examination of constructs such as combat exposure, mental health, and substance use in the prevailing literature utilizes a variety of methods to examine such factors. This most commonly includes the use of dichotomous, categorical, or continuous manifest variables which can be directly observed through data collection. However, this may be somewhat problematic. After all, combat is a multifaceted event. While service members may experience combat numerous times, only some may witness dead bodies, kill enemies, or be injured. Further, while current practice is to measure mental health outcomes as unidimensional scales, diagnostic outcomes, or through other simple means in the criminal justice literature, it is not altogether reasonable to suggest that these factors wholly capture what is considered 'mental health outcomes.' Rather, this project suggests that these and other factors are multidimensional in nature and should be measured as such.

Measurement in this manner has two benefits. First, the validation of a multidimensional construct of combat provides advancement to the academic understanding of the experience. In many previously implemented modeling strategies, combat experience is captured dichotomously or at most, as a single continuous variable (Blonigen et al., 2016; Culp et al., 2013; Snowden et al., 2017; Van Dyke & Orrick, 2017). However, this may be a poor quantification of the experience. Combat is not necessarily only the act of being fired at or experiencing enemy rockets. Rather, it is the culmination of an individual's will to survive and, if necessary, to kill, while others are attempting to do the same, alongside the potential of injury and witness of trauma such as the death of close comrades and civilians. While a quantitative measure will never truly capture such experience, a multidimensional construct may be more accurate in determining the effects of combat than unidimensional measures. This is important because a better understanding of the phenomenon of combat and its subsequent effects on offending may have implications for treatment and programming among JIVs.

Unfortunately, the ability to capture and analyze latent factors such as these is somewhat limited where common analytical strategies are concerned. Further, limitations in existing data most likely preclude researchers from examining the nuanced nature of mental health, substance use, and combat in relation to criminal offending. To address such issues, the current project implements the use of confirmatory factor analysis (CFA) and structural equation modeling (SEM). Specifically, this method is used so that the aforementioned multidimensional constructs can be validated and that their effects on pathways toward offending among veterans can be observed.

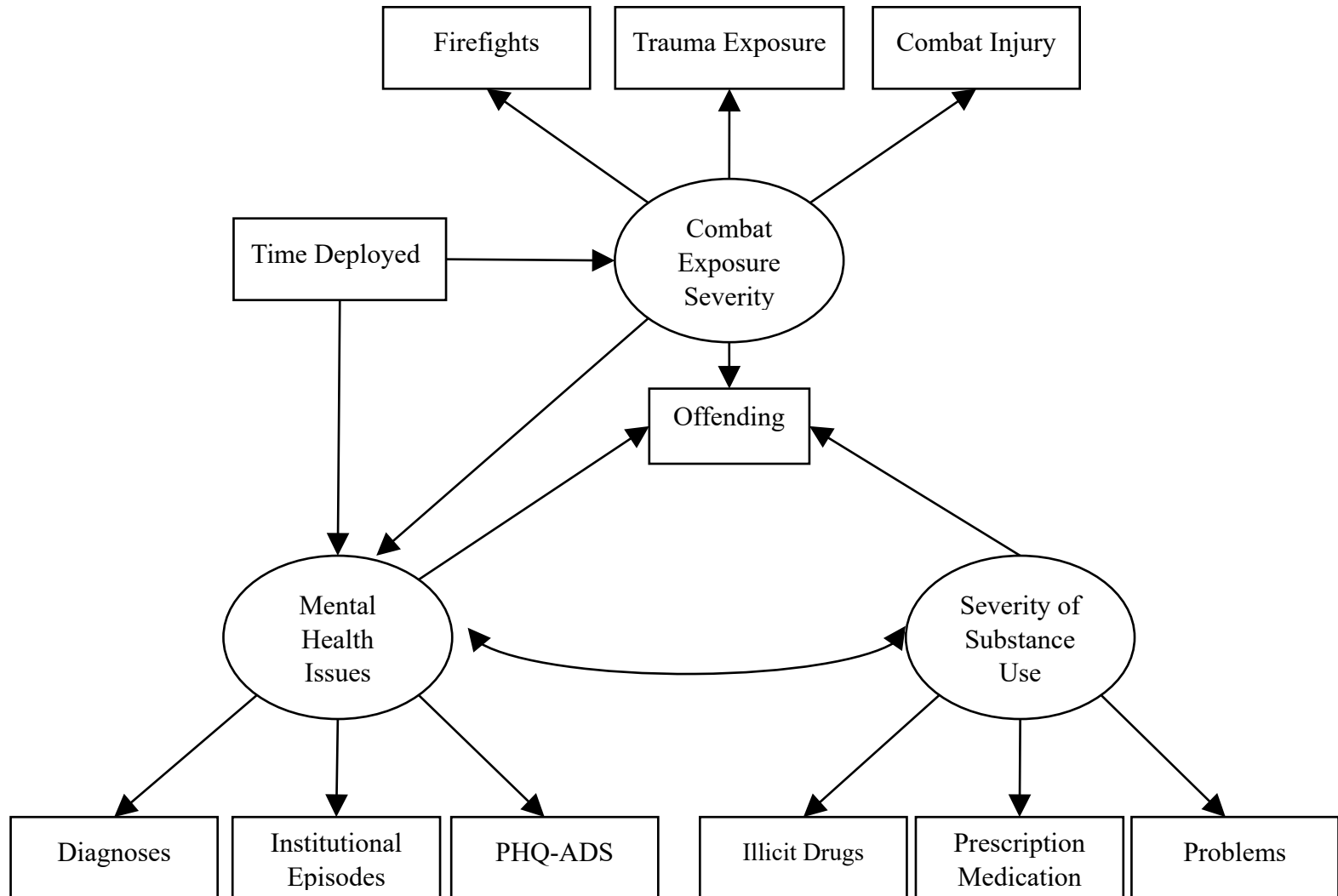
Structural Model

Figure 2 presents the proposed structural model of the veteran offending nexus. Measurement of these variables will be discussed in the Chapter III. This model represents the unification of the VVM and SMH, with additional factors such as deployments, which may be important where offending outcomes are concerned. The key endogenous variable in this model is offending. Time deployed is the key non-latent exogenous variable in this model as deployments both directly influence the ability to experience combat and mental health outcomes through stress. Combat exposure severity, mental health issues, and severity substance use are latent variables. Combat exposure severity is measured through the exogenous variables: 1) firefights; 2) trauma exposure; and 3) combat injuries. The casual mechanism which links the manifest components (firefights, trauma exposure, combat injuries) to combat exposure severity is the potential time and degree of exposure resulting from participation in combat that an individual experiences. Combat exposure severity is theorized to both directly and indirectly influence offending through mental health issues and severity of substance use. Mental health issues are measured through the exogenous variable: 1) diagnoses; 2) institutional episodes; and 3) Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS) score. The causal mechanism which links the manifest components (diagnoses, institutional episodes, PHQ-ADS score) to mental health issues is the potential cumulative effects of mental health issues on normative psychological functioning due to mental health issues that an individual experiences. Mental health issues are theorized to influence offending directly and indirectly through substance use. Severity of substance use is measured through the exogenous variables: 1) illicit drug use; 2) prescription

medication misuse; and 3) social/ physical problems resulting from drug use. The casual mechanism which links the manifest components (illicit drug use, prescription medication misuse, social/ physical problems resulting from drug use) to severity of substance use is the degree of to which substance use or misuse impairs normative social functioning within individuals. Severity of substance use is theorized to influence offending directly and indirectly through mental health. Taken altogether, it is suggested that deployments indirectly influence offending through several mechanisms such as combat, mental health, and substance use. Further, because of the uniquely intense, traumatic nature of combat, it is expected that combat exposure will have relatively greater effects on mental health and offending as compared to deployments.

Figure 2

Theorized Structural Model of Veteran Offending



CHAPTER III

Data and Methods

The purpose of this dissertation is to expand scholarly understanding of the phenomenological relationship between military service and criminal justice involvement. Past work in this area largely employs logistic regression designs to examine the influence of either combat or offending on criminal justice outcomes among veterans. The present study expands on this work in two key areas. First, instead of employing designs which examine the effects of combat exposure or deployments on criminal justice outcomes independently, the current project makes use of analytical designs which measure both experiences. Second, this dissertation will employ a structural equation modeling (SEM) design to examine pathways to criminal justice involvement. While not novel in criminological research, there are no works known to the author which implement SEM design to examine the influence of important factors on criminal justice involvement within the veteran population.

Human Subjects Protection

This study was approved by the Sam Houston State University (SHSU) Institutional Review Board (IRB-2020-163) on 02 July 2020. IRB approval was necessary per university protocols relevant to systematic investigations intended to produce generalizable knowledge derived from human subjects. Because the survey was voluntarily and remotely accessed by subjects at indeterminate times during the study period, informed consent was delivered remotely through the Qualtrics survey platform. In order to take the survey, all participants were required to read the standardized SHSU

Consent for Participation in Research form (see Appendix A) and to voluntarily indicate that they elected to share their answers with the co-principal investigators.

Data Collection Strategy

Initial designs of the current project were aimed at collecting data from a sample of veteran participants in various veterans' groups within the greater Houston area (e.g., the Veterans of Foreign Wars, The American Legion, etc.). Unfortunately, due to the constraints of such organizations regarding soliciting personal information for surveys, alongside the onset of the novel coronavirus (COVID-19) pandemic, it was decided that alternative methods of data collection were needed in order to garner a useable sample for the current project in a timely fashion.

Snowball or chain referral sampling was employed in the current study for several reasons. First, the project endeavored to survey a sample of veterans from several Houston area veteran groups remotely. Unfortunately, it is the policy of many veteran organizations not to disclose member contact information or facilitate the distribution of non-official emails to members. Second, only approximately 7% (U.S. Census Bureau, 2019) of the United States population are veterans of the U.S. Military. Further, veterans are interspersed within the broader population and as a result, are difficult to reach. However, one key characteristic of the veteran population is the sense of community shared by veterans both within and across service eras (Vespa, 2020). Considering this, alongside the unavailability of veterans' organizations as recruitment resources, it was determined that a chain-referral sampling process would be the most effective way to recruit survey participants.

The nature of the COVID-19 pandemic was also influential in the establishment of data collection procedures. In Spring 2020, the SHSU Institutional Review Board suspended the in-person collection of data from human subjects. This, alongside the projected cost of printing and mailing surveys to possible participants, led the principal investigators to consider alternative data collection modalities. Because past research has made note that the use of various social media platforms is ubiquitous among younger generations³ (Chou et al., 2009) and that these platforms are effective means of recruiting survey participants (Hill et al., 2013), it was determined that a sample for this study would most effectively be recruited using social media platforms. As such, the current project engaged local notables or first stage respondents in the chain referral process across three social media platforms: 1) Twitter; 2) Instagram; and 3) Facebook. This was done through social media posts (See Appendix C) on the principal investigators' social media account, which were made once a month after the data collection start date (06 July 2020). In the initial posting on the day of the initiation of data collection, the post was also privately shared with local notables of interest who were known to have substantial involvement with the veteran community on these platforms. In each of the posts, participants were encouraged to take the survey and repost/ retweet the initial message. This resulted in approximately 20 reposts of the initial announcement which were made by survey participants or other non-participant actors on social media platforms (not including the principal investigator).

³ Because social media use is more common among younger individuals it is possible that the current study was more effective in recruiting younger veterans.

Survey Instrument

The survey employed in the current project was hosted on the Qualtrics online survey platform. Access was provided through a link on social-media platform recruitment posts. The survey consisted of 78 items (see Appendix B). Completion time varied between 20 and 35 minutes. The wide variation is likely due to the skip patterns embedded within the survey. These patterns forced those who answered in the negative to numerous questions to skip subsequent questions which assessed factors such as the deployment and combat history, the extent of substance use, and criminal justice involvement, among others.

The survey consisted of a variety of items that were either constructed for the purpose of this project, derived from standardized questions within the National Longitudinal Study of Adult to Adolescent Health (ADD Health), or from the Patient Health Questionnaire Anxiety and Depression Scale (PHQ-ADS)⁴. The survey included the following sections: 1) introduction/ administrative information; 2) military experience; 3) mental health; 4) substance use; 5) crime and criminal justice experiences; 6) background and demographic information; and 7) the survey closing section.

Section one served as the introduction/ administrative section of the survey. This section introduced participants to the project and principal investigators. Additionally, this section provided information on informed consent to respondents, as well as contact information for each of the co-principal investigators. The last portion of this section obtained informed consent from participants. Section two included measures obtaining

⁴ The PHQ-ADS is a composite measure of depression and anxiety derived from the combination of two pre-existing scales, the Patient Health Questionnaire, 9th edition, and the Generalized Anxiety Disorder, 7th edition (Kroenke et al., 2017).

information of various facets of respondents' military experience. This included questions which assessed respondent: 1) military status; 2) past military service characteristics; 3) combat experience; and 4) deployment experience. Section three included questions which collected information on respondents' past and current mental health. This included questions which ascertained information on respondents': 1) mental health diagnosis history; 2) mental health treatment history; 3) family mental health history; and 4) the PHQ-ADS mental health assessment tool.

Section four consisted of questions which assessed respondents' previous, as well as current substance use patterns. Questions in this section assessed respondents': 1) prescription medication history; 2) prescription medication misuse; 3) illicit drug use; and 4) if respondents used prescription medication or illicit drugs to cope with psychological issues. Section five included measures which assessed the degree of respondents' crime and criminal justice involvement. This included questions which asked respondents: 1) if, when, and what crimes they have committed; 2) if, when, and what crimes had been committed in which they were the victim; 3) their arrest history; and 4) their conviction history. Section six collected information on each respondent's general background. Questions in this area focused on demographic information such as: 1) age; 2) gender; 3) education; 4) sexual orientation; and others. The last survey section was the survey closing section. This section consisted of an open-ended response question which asked respondents: *Is there anything you would like to tell the research team that we may have missed which is important?* Additionally, this section ascertained how respondents were recruited into the survey (e.g., Twitter, Facebook, Instagram).

Data Collection, Screening, and Description

Data Collection

Data collection began in July 2020 and was closed in March 2021. Approximately 33 (15.64%) participants were recruited through Twitter, 50 (23.09 %) through Facebook, 54 (25.59) through Instagram, and 80 (36.87%) through other platforms/ methods such as email referrals and word of mouth. This was accomplished through posts initially made by one of the principal investigators (PI) as well as targeted recruitment messages to ‘local notables’ which were known by one of the PIs to be socially influential veterans. Subsequently, local notables who took the survey were then asked to repost the recruitment message. Additionally, the PI periodically (i.e., monthly) reposted the study recruitment message across all platforms. It is unknown how many study participants were recruited from the PI’s or local notables’ recruitment messages. Recruitment across all platforms resulted in an initial sample of 245 respondents.

Screening

During the data cleaning process, it was discovered that there was a large amount of missing data on approximately 39 (14.49%) surveys. Upon closer examination, these surveys were missing data on approximately 95 to 99% percent of responses. Missing data is a common occurrence in survey-based research, and non-response among participants is somewhat common (Tsiampalis et al., 2021). While the reason for missing data in these surveys is unclear, missing data analyses suggested that many of these individuals opted into the survey, disclosed their armed forces history (yes/ no), and then exited the survey. This may be due to the fact that the current survey was designed with a skip pattern that sent participants to the end of the survey if they identified that they had

never served in the military. This was done in order to ensure the sample consisted of only active members or veterans of the armed forces. Alternatively, respondents may have browsed through the survey and determined that they did not desire to participate after identifying questions about sensitive subjects such as mental health, victimization, or criminal offending.

Because these surveys with substantial missing data were likely those who identified that they had not served in the armed forces at any time, they were counted as non-responses and filtered out of the sample. This resulted in a final sample of 222 respondents who had previously served in the United States Military⁵. After discarding non-responses, minor missing data was still present within the survey. Five (2.25%) of the survey respondents had missing data on one or more variables. This was most commonly on the individual components of the PHQ-ADS and the question in the mental health section, asking if respondents had ever been diagnosed with PTSD. Missing data analyses included Mann and Whitney's (1947) Missing Completely at Random (MCAR) test and pattern analysis to examine the multicollinearity between missing variables. Testing suggested that the data were MCAR ($\chi^2 = 0.81$).

Description of the Data

Table 1 presents descriptive statistics for the variables of interest in the current study. On average, respondents had experience of around one-year total time deployed, experienced 22 firefights (SD = 57.00) or combat events if deployed (There was wide variation in this measure), and were more likely than not if deployed to have experienced

⁵ There were an additional 23 respondents that indicated that they were still serving on active duty, or in the Reserves or National Guard. Due to the inability to establish time-ordering where numerous factors were concerned in this group, these responses were excluded from the current project.

traumatic events in the form of dead comrades, civilians, and enemies while deployed. Most respondents ($n = 144$; 64.86%) did not have mental health diagnoses which occurred after the military and had never experienced institutionalized mental health treatment. Additionally, illicit substance use and medication misuse were relatively infrequent.

Table 1

Descriptive Statistics of the Current Study

	Freq	Percent	Mean	(SD)	Range
Number of post-military criminal offenses	–	–	0.59	(1.28)	0 - 11
Total length of time deployed (<i>months</i>)	–	–	12.01	(14.94)	0 - 121
Number of firefights experienced	–	–	22.40	(57.00)	0 - 400
Trauma exposure	–	–	2.90	(1.06)	1 - 4
Combat Injuries	42	18.92	–	–	–
Number of Deployments	–	–	1.35	(1.54)	0 - 8
Has a mental health diagnosis	78	35.14	–	–	–
Number of diagnoses if more than zero	–	–	2.26	(1.12)	1 - 5
Ever experienced institutional episode	26	11.71	–	–	–
Illicit Substance Use	–	–	1.51	(3.32)	0 - 34
Prescription Substance Use	–	–	0.60	(2.14)	0 - 24
Problems caused by drug use	–	–	0.28	(1.01)	0 - 6

Because representativeness, and subsequently generalizability, are common concerns among projects that employ chain-referral or snowball sampling (Biernac & Waldorf, 1981; Cornelieus, 1982), it is useful to compare the current sample to national estimates where possible. Table 2 provides a comparison between the data used in the current project and national-level data provided by The Pew Research Center and American Community Survey (Parker et al., 2019; Vespa, 2020). Largely, demographic information provided by the American Community Survey suggests that the current sample is representative of those who served in the Post-9/11 period, rather than the

entire population of veterans in the United States. However, it is important to note that within the current sample, veterans were less likely to experience deployments, and if deployed, more likely to have experienced combat than those surveyed by The Pew Research Center (*see* Parker et al., 2019). However, it is still important to note that there is no true test of generalizability which was possible to conduct given the current sample. Considering this, it is still possible that the current sample is not generalizable, even to the Post-9/11 sub-population of veterans, and subsequent analyses should be interpreted with caution.

Table 2

Comparative Statistics Between Current Study and Nationally Representative Samples

	Current Study	Existing Research
Deployed	65%	77%
Combat if Deployed	58%	49%
Women	19%	17%
White	66%	65%
Black	14%	14%
Hispanic	12%	13%
Other	7%	7%
Age (years)	35%	36%
High School	20%	22%
Some College	45%	44%
Bachelors or Higher	35%	34%

Note. existing research column found in text within Parker et al. (2019). The American Veteran Experience and the Post-9/11 Generation. Pew Research Center, and Vespa, (2020). Those who served: America's veterans from World War II to the war on terror. American Community Survey.

Analytical Strategy

The analyses of the current project occur in five phases: 1) exploratory factor analysis of latent constructs; 2) confirmatory factor analysis of latent constructs; 3) Ordinary Least Squares (OLS) regression models; 4) the two-step structural equation model construction process for each model; and 5) model interpretation. First, it is important to conduct exploratory factor analysis (EFA) in order to provide evidence to identify underlying factors which may be important components of the multidimensional construct proposed by and utilized in subsequent analyses (combat exposure, mental health severity, substance use severity). It is necessary to conduct EFA prior to confirmatory factor analysis (CFA) as EFA has the potential to identify underlying constructs which may be important components of the latent factors employed in the current analysis. Then, CFA is used to test whether the measures of the identified constructs (combat exposure, mental health severity, substance use severity) are internally consistent and fit within the measurement models hypothesized within the current project (Jöreskog, 1969). Naturally, such a process may result in the addition of items (variables) or their omission through statistical testing so long as such items' inclusion or removal is defensible through theory⁶.

After the establishment of the constituent items which form the basis for latent constructs in the current analyses, supplemental Ordinary Least Squares (OLS) regression will be conducted using the key endogenous variable (offending) as the outcome of interest. While such an additional step is not strictly necessary, within the criminal justice

⁶ Such is the case in the current project. As a result, the measures employed in this project are introduced in the following section rather than prior to the analytical strategy. Further, the omission and addition of certain measures (specific mental health diagnoses, PHQ-ADS scores, etc.) will be addressed in the Chapter V.

field, SEM has traditionally been employed to examine well-studied phenomena, the presence of which researchers have sophisticated and longstanding evidence. While there is such evidence regarding offending among veterans insofar as it has been identified as an issue and linked to exposure to warfare, there is little existing work which has moved past more basic statistical modeling or included factors such as deployment and mental health histories in the field. Considering this, an OLS regression will be conducted in order to facilitate additional evidence that the observed phenomenon is partially explained by these factors and will ideally partially ameliorate concerns with the strengths of causal assumptions in the current project, which has been noted as a major issue in SEM in the broader social sciences field (Fan et al., 2016).

Next, structural equation modeling is implemented following the two-step process proposed in prior research (Kline, 1998; Lomax, 1996), which is the optimal method of conducting SEM. First, CFA is employed to test the measurement model. If this model performs satisfactorily as determined by nine fit indexes, then the structural model will be constructed and assessed. The fit indices examined most often in SEM studies which will be included in the current project are: 1) χ^2 ; 2) adjusted χ^2 ; 3) comparative fit index (CFI); 4) goodness of fit index (GFI); 5) root mean square error of approximation (RMSEA); and 6) standardized root mean square residual (SRMSR). As suggested in prior research, fit indices will then be observed to determine if model fit is sufficient (Hoyle & Panter, 1995).

Last, models will be interpreted in order to determine the directionality and sizes of effects between the observed exogenous factors and the endogenous variable of interest (offending). The interpretation of effects in such models is conducted through the

examination of standardized path coefficients. Paths and standardized path coefficients may be traced and combined to assess both the magnitude of effects but also their relative strength on endogenous variables as compared to other modeled factors. Generally, standardized path coefficient effects are determined to be small (< 0.10), moderate (around 0.30), or large (>0.50) (Kline, 2015).

Measures

The current study employs a variety of measures which are used to examine the influence of combat and deployments on subsequent offending and criminal justice outcomes. This includes: 1) the key endogenous variable – offending; 2) one manifest exogenous variable – time deployed; and 3) three latent constructs – a) combat exposure; b) mental health; and c) substance use.

Endogenous Variables

Endogenous variables, also known as dependent variables, are those which are changed or determined by a relationship with other variables within a given statistical model. The key endogenous variable in the current project is offending. *Offending* is employed as the first key endogenous variable in the first analysis and is a count variable which measures the prevalence of engaging in different offenses among respondents after their military service. This was collected by asking respondents “*not including combat, have you ever done any of the following after your military service?*” They were then able to indicate if they had engaged in any of the following activities: 1) stolen or taken something that did not belong to them; 2) entered someone else's house or business without their permission with the purpose of taking their property; 3) threatened to use a weapon or force to get something from another person; 4) been in a fistfight or fight with

a weapon; 5) deliberately damaged someone else's property; 6) sold marijuana or other drugs; 7) driven while high on drugs or drunk; 8) paid someone with drugs or money to have sex; 9) had sex with someone who didn't want to; 10) intentionally set someone else's property on fire; or 11) used someone else's identity to purchase things in a store or online without their consent or withdrew funds from their bank account without permission. While this variable is treated as continuous in the current model, it is important to note that due to the finite possibility of selection where different types of offenses are considered, this variable is discrete in nature and has a finite possible range of 0 to 11. However, this is not necessarily problematic as there is a precedence for discrete endogenous variables being treated as continuous variables in the prevailing literature (Kline, 1998). Further, a wide array of the types of criminal offending were represented among respondents (see Table 3). The data indicates that generally respondents did not engage in any offenses after leaving the military (Mean = 0.59; SD = 1.28); however, those who did engage in offending were likely to engage in more than one type of criminal offense (Mean 2.00; SD = 1.52).

Table 3*Post-Military Offending*

	Freq	Percent	Mean	(SD)	Range
Post-military offenses (if greater than zero)	–	–	2.00	(1.52)	1 - 11
Theft	30	13.51	–	–	–
Burglary	4	1.80	–	–	–
Robbery	12	5.41	–	–	–
Assault	40	18.02	–	–	–
Vandalism	22	9.91	–	–	–
Drug Dealing	17	7.66	–	–	–
DUI/ DWI	57	25.68	–	–	–
Soliciting a Prostitute	4	1.80	–	–	–
Sexual Assault	1	0.45	–	–	–
Arson	16	7.21	–	–	–
Identity Theft	5	2.25	–	–	–

Exogenous Variables

Exogenous or independent variables are those whose value is determined outside of a given statistical model (Kline, 1998). The key exogenous or manifest variable employed in the current study is *time deployed*. This represents the cumulative months respondents were deployed while in the military. This information was gathered by asking survey participants “*How many times have you deployed to combat zones?*” and then afterwards to “*Indicate the number of months you served on each of your combat deployments.*” Then, a cumulative measure was constructed which computed the number of months respondents were deployed. Within the current data, 65.00% ($n = 143$) of respondents indicated that they had experienced one or more deployment. Among those who had experienced one or more deployment, the average cumulative length of deployments across their careers was 12.01 months ($SD = 14.9$).

Latent Constructs

Combat exposure severity, mental health severity, and substance use severity are latent constructs that are employed in the analyses within the current study. Each construct is comprised of several manifest exogenous variables. The severity of individual combat exposure is measured through 1) firefights; 2) trauma exposure; 3) combat injuries, and 4) number of deployments. *Firefights* is continuous and captures the cumulative number of firefights an individual experienced during their military career while deployed.

This information is captured by asking respondents “*Approximately how many firefights did you take part in across all your deployments?*”. Among those who experienced deployments the number of firefights respondents reported engaging in ranged from 0 to 400⁷. On average, respondents reported participating in 22.40 firefights (SD = 14.94). *Traumatic exposure* is a discreet index and measures the relative external trauma respondents experienced while participating in combat. This information was captured by asking respondents “*During your combat deployment(s), did you ever kill or think you killed someone?*” to which participants were able to respond “yes” or “no.” The survey also asked respondents “*During your combat deployment(s), did you ever see anyone wounded, killed, or dead?*” to which they were allowed to choose a variety of affirmative responses that they had seen allies, civilians, or enemies killed in combat.

These answers were then compiled into an index which had a theoretical range from 0 to 4. Among those who experienced combat, the mean level of traumatic exposure

⁷ While this seems like a large number it is important to note that this is a cumulative measure across deployments. Further bases like Firebase Tinsley (formerly Firebase Cobra) in Afghanistan were known to be engaged by insurgents with direct and indirect fire daily in the late 2000’s.

was 2.90 incidents (SD = 1.06), indicating that most respondents had experienced one or more forms of trauma while in combat. *Combat injury* is binary and measures whether respondents were injured in combat. This information was captured by asking respondents “*During your combat deployment(s), were you ever wounded or injured?*”. Within the current sample, approximately 18.92% ($n = 42$) of respondents indicated that they had been injured while participating in combat. Respondents were also asked the number of times they had been deployed. The number of deployments respondents had experienced ranged from 0 to 8 and on average, respondents experienced 1.35 deployments (SE = 1.54). Within the current sample, the combat exposure severity construct was found to be sufficiently internally consistent ($\alpha = 0.76$).

The severity of mental health severity is measured through a series of measures which capture 1) mental health diagnoses; and 2) institutional episodes. *Diagnoses* are provided by a series of non-exclusive dichotomous variables and signifies the which (if any) mental health issues respondents have been diagnosed with by a medical professional after their military service.

This information was captured by asking respondents “*Please indicate if a doctor, nurse, or other health care provider has ever told you that you have one or more of the following*”, and then afterwards “*Please indicate if the health conditions you previously indicated you have been diagnosed with are related to your military or combat experience*”. Approximately 35.14% of respondents had one or more mental health diagnoses after their military service. The average number of mental health diagnoses among respondents was 2.26 (SD = 1.15) among those with one or more diagnosis. The mode common diagnoses were Post-Traumatic Stress Disorder ($n = 58$; 26.13%) and

Depressive Disorder ($n = 48$; 21.62%), followed by Generalized Anxiety Disorders ($n = 45$; 20.27%), Bipolar/ Manic Depressive Disorder ($n = 16$; 7.21%), and Schizoaffective Type Disorders ($n = 10$; 4.50%).

Institutional *episodes*⁸ is binary and measures if an individual has received in-patient mental healthcare after their military service. This information was captured by asking respondents “*Have you spent one day or more in a facility where you were treated for a mental illness?*” and whether it occurred before, during, or after their military service. Twenty-six respondents (11.71%) indicated that they experienced one or more institutional mental healthcare events. Within the current sample, the mental health severity construct was found to be sufficiently internally consistent ($\alpha = 0.84$).

Table 4

Post-Military Mental Health Diagnoses

	Freq	%	Mean	SD
None	144	64.85		
Anxiety	45	20.27	–	–
PTSD	58	26.13	–	–
Depression	48	21.62	–	–
Schizoaffective	10	4.50	–	–
Bipolar	16	7.21	–	–
Number of diagnoses (if at least one)	–	–	2.26	(1.15)

The severity of substance use issues is measured through 1) illicit drug use; 2) prescription medication misuse; and 3) social/ physical problems caused by drug use.

⁸ Due to limitations in data collection procedures, it is unclear if the institutional episodes captured in the current data were voluntary or otherwise.

Illicit drug use is discrete and measures the average prevalence of individual illicit drug use since leaving the military.

This information was captured by asking individuals the frequency of their use of seven illicit drug types: 1) cannabinoids; 2) opioids; 3) stimulants; 4) club-drugs; 5) dissociative drugs; 6) hallucinogens; and 7) anabolic steroids (See Table 5). Frequency of drug use was measured through 6 Likert scale questions which assessed if their use of each substance was daily, weekly, every few weeks, every month, less than a month, or never. These answers were then compiled into an index which had a theoretical range from 0 to 35 (See Table 7). Respondents' illicit drug use index values ranged from 0 to 34 with an average score of 1.51 (SD = 3.23).

Table 5

Illicit Drugs Used by Respondents

	Freq	Percent
None	124	55.86
Cannabinoids	49	22.07
Stimulants	2	0.90
Club Drugs	1	0.45
Dissociative Drugs	6	2.70
Hallucinogens	21	9.46
Anabolic Steroids	16	7.21

Prescription medication misuse is discrete and measures the average prevalence of individual prescription drug misuse since leaving the military. This information was captured by asking individuals the frequency of their misuse of five prescription

medication types: 1) opioid painkillers; 2) sedatives; 3) stimulants; 4) anti-psychotic medications; and 5) sleep medications (See Table 6). Frequency of drug use was measured through 6 Likert scale questions which assessed if the misuse of each substance was daily, weekly, every few weeks, every month, less than once a month, or never. These answers were then compiled into an index which had a theoretical range from 0 to 25 (See Table 7). Respondents' prescription medication misuse index values ranged from 0 to 24 with an average score of 0.60 (SD = 2.14).

Table 6

Prescription Medications Misused by Respondents

	Freq	Percent
None	182	81.98
Opioids	31	13.96
Stimulants	14	6.31
Club Drugs	23	10.36
Dissociative Drugs	7	3.15
Hallucinogens	15	6.76

Social/ physical problems caused by substance use is discrete and measures the prevalence of sustained illicit drug use or medication misuse despite the onset of social problems, emotional health problems, or physical health problems. This information was collected by asking respondents: 1) “Do you think that your use of illegal drugs has caused you the following problems?” and 2) “Do you think that your misuse of prescription medications has caused you the following problems?”. Respondents were then able to choose multiple answers or combinations thereof which indicated if that they

had continued to use the previously mentioned substance typologies despite suffering physical, emotional, or social problems. These answers were then compiled into an index which had a theoretical range from 0 to 6 (See Table 7). Respondents' social/ physical problems caused by substance use index values ranged from 0 to 6 with an average score of 0.28 (SD = 1.00). Within the current sample, the construct of severity of substance use was found to be sufficiently internally consistent ($\alpha = 0.82$).

Table 7

Indices of Substance Use Among Respondents

	Mean	(SD)	Range
Illicit drug use	1.51	(3.23)	0 - 34
Prescription medication misuse	0.60	(2.14)	0 - 24
Social/ physical problems caused by substance use	0.28	(1.00)	0 - 6

CHAPTER IV

Results

In Chapter IV, I discuss the quantitative analyses employed to answer the research questions: 1) do military deployments have direct and indirect effects on subsequent offending among veterans, and 2) what are the direct and indirect effects of previously observed factors such as combat, mental health, and substance use, on subsequent offending among veterans? While these questions are ultimately answered largely by a singular analysis (SEM), the progression to completing this analysis takes place in five phases: 1) exploratory factor analysis of latent constructs; 2) confirmatory factor analysis of latent constructs; 3) an ordinary least squares regression; 4) the two-step structural equation model construction process for each model; and 5) model interpretation.

Exploratory and Confirmatory Factor Analysis of the Latent Factors

Exploratory Factors Analysis (EFA) consists of: 1) Bartlett's Test of Sphericity; 2) the Kaiser-Meyer-Olkin Test for Sampling Adequacy; 3) analysis of Eigenvalues; 4) analysis of Factor Loadings; and where applicable 5) rotation. Each of these procedures has a unique purpose in the EFA process and requires different thresholds of acceptability to be gauged. Bartlett's Test of Sphericity (BTS; Bartlet, 1954) tests the null hypothesis that a correlation matrix for given data within a provided sample is an identity matrix. That is, Bartlett's Test is used to determine if given data are unrelated. Therefore, a significant p value on the Bartlett's Test (conventionally $p < 0.05$) indicates that the data are not an identity matrix and therefore are suitable for use in factor analysis. The Kaiser-Meyer-Olkin Test (KMO; Kaiser, 1970; Kaiser & Rice, 1974), is used to determine the strength of the partial pseudo-correlation between variables provided in a given analysis.

KMO values range from 0 to 1 and more recent operationalizations (Hutcheson & Sofroniou, 1999; Field 2013) of this measure suggest that a KMO of 0.80 or higher is required⁹.

After BTS and KMO are determined sufficient, Principal Component Analysis (PCA) should be conducted to determine: 1) the number of factors the given items represent; and 2) how, if at all, researchers can reduce items to more parsimoniously measure individual factors. This process is best accomplished through the analysis of Eigenvalues and Factor Loadings. Broadly, Eigenvalues indicate the amount of variance associated with each variable in a given correlation matrix as extracted from a Wishart distribution and weighted in such a manner wherein matrices with higher numbers of variables are penalized (Anderson, 1963). Practically, this means that Eigenvalues indicate to what degree the variance in a given factor may be explained by the variables provided. Eigenvalues above 1 are generally considered acceptable (Kaiser, 1960), with higher values (within the same analysis) indicating a larger proportion of variance explained by variable, per variable, in a given matrix. Conversely, Factor Loadings signify standardized correlation coefficients between a latent factor and designated items (variables) provided within a model. In short, the higher the absolute value of a Factor Loading, the greater effect a given item has on the identified factors. Generally, Factor Loadings of 0.40 and higher are considered the minimum threshold for being appropriate for variables' inclusion in a latent construct.

The last step in EFA is rotation, in cases that more than one factor are present. Rotation is done to maximize the identifiable differences between components. When

⁹ Although initially, KMO statistics of 0.50 and higher were generally accepted as high enough to warrant initiation of factor analysis (Kaiser, 1974).

two or more factors are present, the structure matrix of each factor differs, however, items are typically loaded equally within the top factors which makes them difficult to distinguish – and theoretically results in similar Eigenvectors and, as a result, Eigenvalues. Therefore, rotation methods are used as a way by which the loadings of individual items on their highest associated given factor are maximized while being simultaneously minimized on all others. In practice, this makes the variance items within a given factor explained more equally while simultaneously increasing the likelihood that they will more satisfactorily load on a single factor (or fewer factors). After rotation, Eigenvalues and Factor Loadings are reassessed to determine item inclusion in a given factor.

After EFA is used to determine the appropriate items (variables) within a given factor (latent construct), CFA is employed to assess absolute and incremental fit of the latent factor. Mechanically, this process is identical to that of constructing a structural equation model, save for the fact that each manifest variable is loaded onto a single latent construct. Then, model fit statistics are assessed. As with the final structural model, the fit of the latent constructs through CFA will be assessed via 1) χ^2 ; 2) adjusted χ^2 ; 3) CFI; 4) GFI; 5) RMSEA; and 6) SRMSR. A description of the appropriate thresholds for each fit index are provided in Table 8. Factors which perform adequately along all or most of these indices are then deemed appropriate for inclusion in the final model.

Table 8*Standard Model Fit Indices*

Index	Standard
Bartlett's Test of Sphericity (BTS)	$p < 0.001$
Kaiser-Meyer-Oklin (KMO) Measure of Sampling Adequacy	< 0.800
Cronbach's Alpha (α)	< 0.750
χ^2	$p > 0.001$
Adj. χ^2	< 5.000
CFI	> 0.900
GFI	> 0.900
RMSEA	< 0.100
SRMSR	< 0.050

The factorability of the four items in the proposed latent construct *Combat Exposure Severity* was examined¹⁰. First, all three items correlated at least 0.30 correlation with at least one other item (see Appendix D), indicating reasonable factorability. Next, Bartlett's Test of Sphericity was significant ($\chi^2(6) = 201.18, p < .001$) and the Kaiser-Meyer-Oklin measure of sampling adequacy was 0.82 (see Table 9). Principal Component Analysis suggested the retention of one factor from these variables with an Eigenvalue of 3.23. Varimax Orthogonal rotation was employed for interpretability. All four items had factor loadings greater than 0.45. Finally, the items employed in the Combat Exposure Severity construct were also internally consistent with one another ($\alpha = 0.76$). Confirmatory Factor Analysis was then employed to test the factor structure of Combat Exposure Severity against several fit indices. The model performed adequately across all indices ($\chi^2 = 0.71$; Adj. $\chi^2 = 0.84$; CFI = 0.94; GFI =

¹⁰ Additional combat centric factors included in EFA were number of times deployed, occupational specialty, and branch of service (as these may influence combat exposure and response to combat exposure). After EFA, the only item with sufficient loading outside of those originally identified in Chapter II was number of times deployed.

0.99; RMSEA = 0.01; SRMSR = 0.01) suggesting that the constituent components of the Combat Exposure Severity construct demonstrated good model fit and that this measurement model is appropriate to be fitted within the final structural model.

Table 9

Latent Construct Fit Statistics

	BTS	KMO	α	χ^2	Adj. χ^2	CFI	GFI	RMSEA	SRMSR
Combat Exposure Severity	201.18***	0.82	0.76	0.71	0.84	0.94	0.99	0.01	0.01
Mental Health Severity	865.20***	0.85	0.84	7.90	8.92*	0.91	0.95	0.10	0.02
Substance Use Severity	254.05***	0.88	0.82	0.25	3.34	0.99	0.98	0.01	0.02

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

The factorability of the six items in the proposed latent construct *Mental Health Severity* was examined¹¹. First, five of the six items correlated at least 0.30 correlation with at least one other item (see Appendix E), indicating reasonable factorability. Next, Bartlett's Test of Sphericity was significant ($\chi^2(28) = 865.20, p < .001$) and the Kaiser-Meyer-Oklun measure of sampling adequacy was 0.85. Principal Component Analysis suggested the retention of one factor with an Eigenvalue of 2.82. Varimax Orthogonal rotation was employed for interpretability. All four items had factor loadings greater than 0.61. Finally, the items employed in the Mental Health Severity construct were also

¹¹ Initially, seven items were included. This resulted in the identification of three factors. PCA and EFA indicated that all items loaded sufficiently on the first factor but PHQ-ADS score, which loaded sufficiently on factors two and three. When PHQ-ADS was eliminated from the analyses, only one factor was retained with a sufficient Eigenvalue (>1.00) for analyses.

internally consistent with one another ($\alpha = 0.84$). Confirmatory Factor Analysis was then employed to test the factor structure of Mental Health Severity against several fit indices. The model performed adequately along five of seven indices ($\chi^2 = 97.90$; Adj. $\chi^2 = 8.92$; CFI = 0.91; GFI = 0.95; RMSEA = 0.10; SRMSR = 0.02)¹². In the cases in which the model violated fit indices thresholds, the model parameters were at, or near the generally agreed upon thresholds and violations were not quantitatively substantial. Findings suggests that the constituent components of the Mental Health Severity construct demonstrate reasonable model fit and that this measurement model is appropriate to be fitted within the final structural model.

The factorability of the three items in the proposed latent construct *Substance Use Severity* was examined. First, each item correlated at least 0.30 correlation with at least one other item (see Appendix F), indicating reasonable factorability. Next, Bartlett's Test of Sphericity was significant ($\chi^2(3) = 254.05, p < .001$) and the Kaiser-Meyer-Okin measure of sampling adequacy was 0.88. Principal Component Analysis suggested the retention of one factor from these variables with an Eigenvalue of 2.05. Varimax Orthogonal rotation was employed for interpretability. All four items had factor loadings greater than 0.64. Finally, the items employed in the Substance Use Severity construct were also internally consistent with one another ($\alpha = 0.82$). Confirmatory Factor Analysis was then employed to test the factor structure of Substance Use Severity against several fit indices. The model performed adequately across all indices ($\chi^2 = 0.25$; Adj. $\chi^2 = 3.34$; CFI = 0.99; GFI = 0.98; RMSEA = 0.01; SRMSR = 0.02) suggesting that the constituent

¹² The model performs at the generally agreed upon threshold for RMSEA (0.10); and was just past the adjusted χ^2 threshold for significance $p < 05$.

components of the Substance Use Severity construct demonstrate good model fit and that this measurement model is appropriate to be fitted within the final structural model.

An OLS regression was calculated to predict the effects of each of the previously identified manifest variables on the number of post-military offenses respondents engaged in (see Table 10)¹³. The model was significant ($F(14, 206) = 14.71, p < 0.001$) with an adjusted R^2 of 0.56. Findings suggested that numerous factors were significant. The total number of months an individual was deployed across their career and the number of physical, emotional, and social problems they encountered as a result of substance use significantly and negatively influenced the number of post-military criminal offenses they engaged in. Conversely, the number of firefights an individual engaged in, whether they were injured in combat, if they had a PTSD or Bipolar/ Manic Depressive Diagnosis, and greater levels of illicit drug use as well as prescription medication misuse were correlated with significant increases in the number of post-military offenses respondents engaged in. Further, no variable exceeded the generally agreed upon VIF threshold of 5.00 (Mernard, 2002)¹⁴. Taken alongside implications within existing theory, as well as the EFA/ CFA of the latent constructs within the present model, there is compelling reason to fit and test the structural model proposed by the current project.

¹³ Two additional OLS models were computed. Each model consisted solely of the constituent parts of one of the applied theories (see Appendices G and H). The VVM model only explained around 2% of the variance in post military offending and failed to converge. The SMH model only explained around 44% of the variance in post military offending.

¹⁴ Indeed, no VIF exceeded past 2.5 which is the strictest of thresholds (Johnston et al. 2018), however, there is generally less support for this cutoff in the literature.

Table 10*OLS Regression of Factors' Impacts on Post-Military Offending*

	<i>b</i>	(SE)	β	VIF
Months deployed	-0.08*	0.00	-0.70	2.27
Number of times deployed	-0.05	(0.10)	-0.06	3.01
<i>Combat Nexus</i>				
Number of firefights experiences	0.01*	0.00	0.07	1.29
Combat trauma exposure	0.05	0.20	0.01	2.12
Injured in combat	0.61***	0.22	0.16	1.43
<i>Mental Health Severity</i>				
Ever institutionalized	0.33	0.25	0.07	1.36
<i>Diagnoses</i>				
Anxiety	0.05	0.23	0.01	1.74
PTSD	0.43***	0.23	0.13	2.13
Depression	0.21	0.23	0.06	1.80
Schizophrenia	0.03	0.28	0.00	2.04
Bipolar/ Manic Depressive	0.38**	0.24	0.06	2.17
<i>Substance Use Severity</i>				
Illicit drug use	0.07**	0.03	0.17	2.99
Prescript medication misuse	0.31***	0.05	0.47	2.71
Problems from substance use	-0.07*	-0.07	-0.05	1.28
N	217			
Adjusted R ²	0.56			

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

The structural model in the current study is provided in Figure 3 and Table 11 provides path coefficients. The model performed adequately across all indices ($\chi^2 = 0.83$; Adj. $\chi^2 = 2.95$; CFI = 0.90; GFI = 0.92; RMSEA = 0.09; SRMSR = 0.04), suggesting that the constituent components of the path model demonstrate good fit and are appropriate for inclusion in the final structural model¹⁵. The analyses suggest that only Substance Use Severity had large direct effects on the number of offenses an individual engaged in ($\theta = 0.65$; SE = 0.01). Combat Severity had a moderately sized direct effect on the number of offenses an individual engaged in ($\theta = 0.27$; SE = 0.00). Conversely, Months Deployed ($\theta = 0.23$; SE = 0.03), and Mental Health Severity ($\theta = 0.25$; SE = 0.00) both had significant but small effects on the number of offenses an individual engaged in. Additionally, as expected with SEM, the indirect effects of most factors were, for the most part, small or negligible. However, it is worth noting that the indirect effect of months deployed through combat on the number of offenses an individual engaged in was approaching moderate in size ($\theta = 0.23$; SE = 0.00).

Table 11

Exogenous/Latent Variable Effect on Post-Military Offending

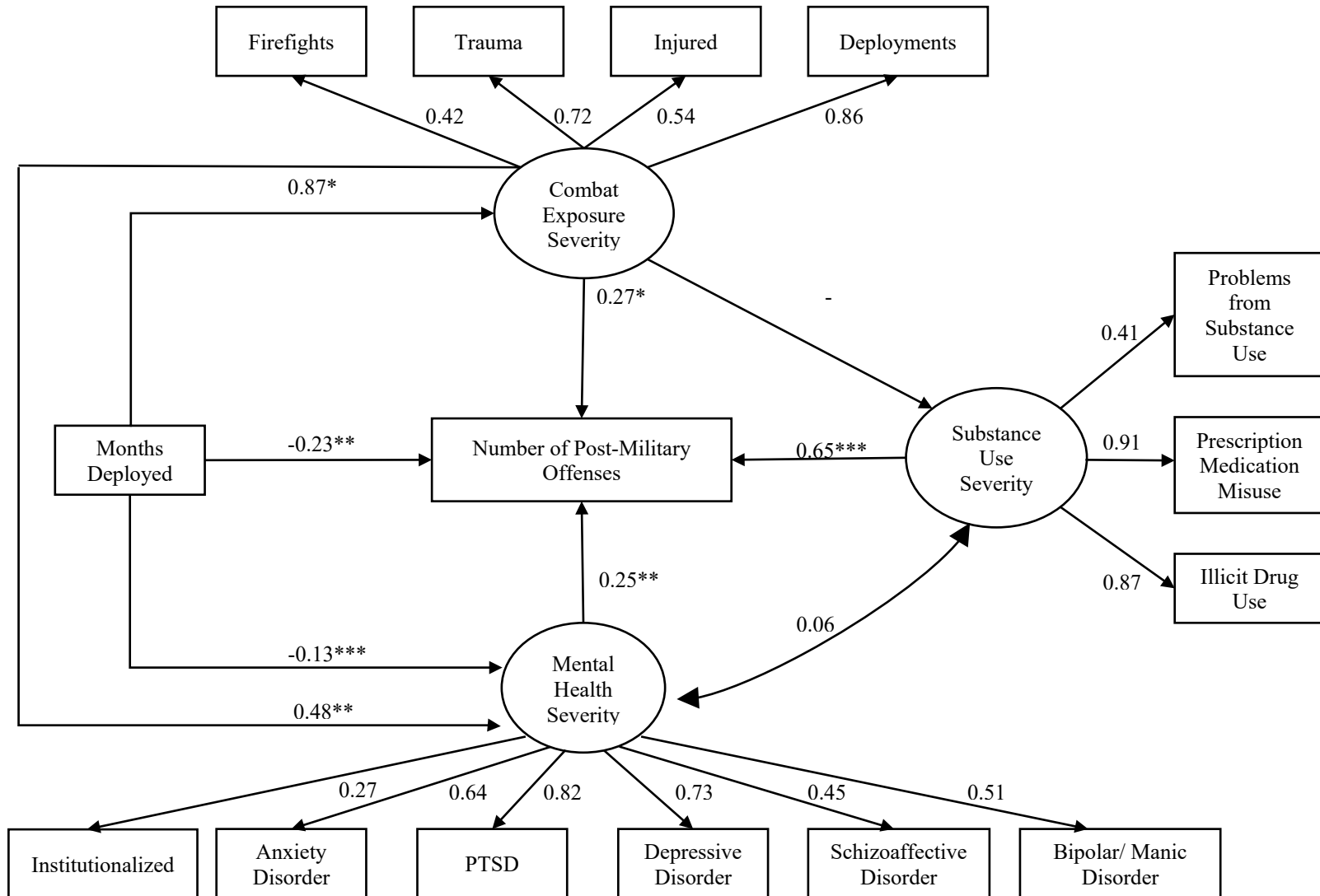
	<i>b</i>	(SE)	θ
Combat Severity	0.01***	(0.00)	0.27
Time Deployed	-0.02*	(0.03)	-0.23
Mental Health Severity	0.04***	(0.00)	0.25
Substance Use	0.32***	(0.01)	0.65

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

¹⁵ While the institutionalized manifest variable in the mental health severity construct produced a relatively small path coefficient, the removal of this variable did not significantly improve model fit either during CFA or construction of the final structural model. As a result, it was chosen to retain this factor to maintain heterogeneity in the latent construct and more closely approximate existing theoretical foundations.

Figure 3

Revised Structural Model



CHAPTER V

Discussion

In Chapter V, I summarize the current project's key findings as they relate to the creation of latent constructs and the structural model, as well as how they answer the study's research questions, and provide additional insight into the effects of deployments and subsequent combat experiences among veterans. I then discuss how the findings of the current study may be interpreted to provide guidance for veterans' research, theories of the etiology of criminal offending where veterans are concerned, and substantive policy revisions. Last, limitations of the current project are discussed and highlighted in a manner that provides strategies to ameliorate such issues where possible and necessary.

Key Findings

Structural Model Adaptation

If one refers to the initial proposed structural model (see Figure 2), it is evident that there are some substantial differences when compared to the final structural model (see Figure 3). This is the result of two distinct processes. First and foremost, the process of factor analysis (both those components which are exploratory and confirmatory in nature) necessitates the exploration of alternative items when assembling the components of latent constructs. While theories such as those which are presented in the current project serve as a guide for the assembly of such factors, it is not always the case that theory is wholly informative on the front end – indeed, this process may be somewhat subjective and contingent upon who is interpreting said theory. For instance, in the current project, it was initially supposed that a continuous measure of the number of mental health diagnoses as well as the PHQ-ADS would be appropriate constituents of

the Mental Health Severity latent construct. Unfortunately, these measures performed poorly during the factor analysis process. A variety of measures were then added, dropped, or substituted for the initially proposed items. In the end, the replacements were a series of non-mutually exclusive variables which measured mental health diagnoses (e.g., PTSD, depression, bipolar, etc.).

Alternately, some structural relationships were examined in the final structural model, which were not initially proposed in the front-end of the project, specifically, the direct relationship between time deployed and criminal offending, as well as the indirect effects of combat severity on criminal offending through substance use. The discovery of these relationships resulted from attempts at developing a more saturated model that was theoretically informed. As will be discussed later in these sections, these findings were retained due to the fact that they resulted in: 1) better absolute model fit, and 2) were defensible through the lens of the theory provided.

SEM is unique insofar that in using this method, a researcher has due diligence to attempt to identify the most parsimonious and theoretically sound model where possible, but also a responsibility to not stop when such models are specified. Rather, as others have noted, it is important to examine other exigent relationships within models which hold the potential for affecting observed outcomes when possible (Acock, 2013; Kline, 1998; Schumaker & Lomax, 2003). This ensures models are neither spurious nor subject to the provenance of the trending theories of the day. In an effort to be transparent, the current project has been presented with both the theorized models in the front end and those which were the result of sound statistical testing in the latter half. It is important to note that despite model development over the course of this project, both fall within the

purview of the theories this project endeavored to test and have implications for the literature in both areas.

Research Question One

The first research question was, *do military deployments have direct and indirect effects on subsequent offending among veterans?* This question was addressed by creating a structural model in which the number of months deployed was included as a manifest variable. The direct effect of number of months deployed on post-military offending was observed to be at the threshold, which is generally agreed upon to be small to moderate in size (Kline, 1998). The indirect effects of deployments on post military offending through Combat Exposure Severity and Mental Health Severity were also examined. The indirect effect of the number of months deployed on post-military offenses through Mental Health Severity was quite small. While the effect of the number of months deployed on post-military offending through Combat Exposure Severity still did not meet the threshold for being considered “moderate” in size, it was relatively larger than the other indirect effect (i.e., number of months deployed through Mental Health Severity) and was approaching the next cut point for magnitude.

What is most surprising is the negative association between months deployed and the number of post-military offenses. While it is outside the focus of the current project to explore *why* the directionality of this phenomenon is not expected, there are components of theory in the prevailing literature which provide justification as to why months deployed would be a protective factor. Namely, the increases in months deployed signal increases in age, military status, and the likelihood to experience additional career- and family-based turning points that signal a transition out of the emerging adulthood stage of

the life-course. As is demonstrated in the broader life-course criminological literature, these factors can all be instrumental in reducing one's involvement in crime and crime analogous behaviors or, at the very least, by changing *how* individuals offend (Salvatore & Taniguchi, 2021). Therefore, it is not necessarily surprising that those who experience more time deployed also potentially experience a host of other protective factors.

There is scant research that has examined the effect of military deployments on subsequent offending among military/ veteran samples. Rather, researchers have primarily focused on the nexus between combat and offending among those who have experienced deployments (e.g., Culp et al., 2013; Elbogen et al., 2012; Snowden et al., 2017; Van Dyke & Orrick, 2017; White et al. 2012). The findings of the current suggest that military deployments may be deserving of the attention that combat has had in the existing literature. Additionally, with recent drawdowns in the Middle East, it may be the case that, for the time being, combat experience will start to become a less common phenomenon among service members. Taken alongside findings from the current project, there is a compelling reason to reorient the veterans' literature to place a relatively larger focus on how deployment experiences influence subsequent criminogenic outcomes.

Research Question Two

The second research question was *what are the direct and indirect effects of previously observed factors such as combat, mental health, and substance use, on subsequent offending among veterans?* This question was answered through a multi-step process. First, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were employed to create and validate several latent constructs: 1) Combat Exposure Severity, 2) Mental Health Severity, and 3) Substance Use Severity (see Appendices I –

K). These latent factors were then included in a structural model (see Figure 3). After it was determined that the model met the generally agreed upon thresholds for model fit (χ^2 ; Adj. χ^2 ; CFI; GFI; RMSEA; SRMSR), path coefficients were interpreted. The direct effect of Substance Use Severity on the number of post-military offenses was the largest in magnitude and reached the threshold required to be considered large in size.

Conversely, the reciprocal relationship between Mental Health Severity and Substance Use Severity was not significant. The direct effect of Combat Exposure Severity on number of post-military offenses was nearing moderate in size. Additionally, the indirect effects of Combat Exposure Severity on the number of post-military offenses through Mental Health Severity and Substance Use Severity were significant but small in magnitude. Last, the direct effect of Mental Health Severity on the number of post-military offenses was, like Combat Exposure Severity, nearing the threshold to be considered moderate in size.

Exigent Findings

In addition to the primary research questions in this study there were exigent findings which taken alongside the foci of the current project, serve to enhance the understanding of veterans within the current literature. Notably, combat exposure severity was found to have substantial direct effects on mental health severity ($\theta = 0.48$; $SE = 0.00$). This finding corroborates that in much of the veteran literature, however, taken with the protective (negative) effects of deployments on mental health, this project may show that while engaging in combat with enemy forces is deleterious for one's mental health in the long-run, deployments may in part insulate individuals from the negative consequences of such experiences. That is, deployments may signal capacity building

wherein those who deploy more eventually build up a tolerance for combat stress reactions. Such interpretations however are also potentially limited due to confounding phenomena. That is, those who deploy more are by virtue of the temporal nature of deployments, more likely to be older. As such, deployments may signify a double benefit wherein older service members have through age, developed a greater capacity to deal with the trauma of combat, and through direct as well as indirect exposure to combat on deployments have further bolstered that capacity. Of course, such phenomenological factors cannot be directly addressed within the current project. However, these findings once again suggest a need for expanding the study of offending among veterans past the focus of service-related factors, rather, there is a need to refocus the veteran literature in such a way which more adequately examines the relationship between service-related as well as broader criminogenic factors as well as their interactions.

To summarize, the current project finds that Combat Exposure Severity, Mental Health Severity, and Substance Use Severity have significant direct effects on the number of post-military offenses individuals engaged in. Additionally, there is evidence that Combat Exposure Severity had additional significant effects on post-military offenses through Mental Health Severity and Substance Use Severity. These findings, alongside changes in the proposed structural model (see Figure 2) resulting from the adaptation of the measurement of latent factors within the study, as well as changes in the structural model (see Figure 3), suggest that these factors are important components of why veterans engage in crime. Supplementary OLS regression models including these factors suggested they explained nearly 56% of the variance in post-military offending together – in fact, the unified model explained a larger proportion of the variance in offending than

the sum explained by separate VVM and SMH models. Despite this, there is still much to be uncovered where the long-term effects of deployments, combat, and military service on criminal offending and justice contact are concerned. As a result, the findings of this project provide implications for research, theory, and practice in the broader veteran literature.

Implications

Research Implications

First, this study makes three important contributions to the literature on veterans in the criminal justice system. I was able to: 1) demonstrate that military deployment length, which has not often been included in veterans criminal justice research, is an influential predictor of offending; 2) provide evidence that the focus on service-connected factors where veteran offending is concerned may be misguided, and 3) demonstrate it is possible to access hard-to-reach populations such as veterans for study using chain-referral sampling on social media platforms.

Time Deployed Influences Subsequent Offending Patterns Among Veterans.

The current study empirically validated the notion that the amount of time service members experience deployment overseas has a significant impact on the number of criminal offenses they engage once they separate from the military. Moreover, time deployed was demonstrated to have both significant direct and indirect effects on offending. While the effects of time deployed were modest and relatively smaller in magnitude than the direct effects of combat on subsequent offending after military service, this has implications for research.

As stated previously, the veterans' research in the criminal justice field has focused heavily on how combat, mental health, and substance use influence criminal offending and criminal justice involvement. While these factors are undoubtedly important, the current project demonstrates that other facets of military service should be considered. From a research standpoint, the inclusion of deployments intrinsically makes sense; there is an established body of literature that links stress to anti-social outcomes later in life (Lorber et al. 2004), and there is also work detailing that deployments elicit physiological and psychological stress responses (Griffith, 2010; Vasterling & Proctor, 2011). It is, however, important to note that the addition of deployments in veterans research can also be seen as symbolic insofar as it demonstrates there is a need to reevaluate what is measured in veterans research and how. As will be discussed in the limitations section, the operationalization of many of the core concepts of veterans' research, such as combat, may seem straightforward and uniform at first glance, but upon closer examination, their presentation in research potentially belies measurement consistency issues.

Service-Connected Factors May be a Poor Focal Point for Veterans

Research. As previously mentioned, the current study found that Combat Exposure Severity and time deployed had small to moderate effects on offending after military service. Conversely, while Mental Health Severity had a small to moderate effect as well, Substance Use Severity had a substantially larger effect on post-military offending. When one considers the type of criminal offending measured in the current project and their distribution, such findings are not surprising. Counter to Bronson and colleagues (2015), the current project finds that DUI/DWI is the most common offense category among

respondents, and, if combined with drug dealing, these offenses account for over a third of crimes respondents self-reported engaging in. Taken together with the structural model specified in the analytical section (see Figure 3), the current project suggests that while the effects of combat and time deployed are meaningful, substance use may have an overall larger effect on offending outcomes than these measures. Further, the indirect effect of combat on offending through Substance Use Severity was small, indicating that the amount of variance in offending attributable to this pathway is somewhat small (Schumacker & Lomax, 2004). Such findings can be taken to mean two things. First, there may be a need in future veterans' research to reevaluate the pathways towards offending that veterans take and the role substance use plays in them. Second, the focus on service-related factors in veterans' research may not be warranted. Instead, factors that are prevalent in the broader literature and have been linked to offending among a diverse array of groups may be more fruitful areas of research. Altogether, there may be a need to de-emphasize unique factors in veterans research (e.g., deployments, combat) and instead, to emphasize unique factor weights (e.g., substance use may matter more for veterans).

Novel Research Design. The current project necessitated a sample solely comprised of U.S. Military Veterans. In the United States, Veterans are a protected class and, as such, it is difficult to obtain their information from a variety of sources as the release of such information is legally restrained. Further, many veteran organizations such as the American Legion and Veterans of Foreign Wars have specific bylaws wherein they do not facilitate the indirect solicitation of their members for commercial-

or research-based reasons¹⁶. Additionally, the onset of the COVID-19 pandemic made the solicitation of surveys from in-person events where large groups of veterans gather impossible.

To circumvent these obstructions to data collection, chain-referral sampling via social media was employed. This process included the recruitment of prominent veterans (local notables) to aid in survey disbursement. The survey was then administered through Qualtrics over a stable link which respondents could access at their leisure. Over a period of six months, this process yielded 257 near-complete responses. The resultant sample is by no means approaching a threshold that should be considered “large,” however, veterans have been identified as a hard-to-reach population in past research (Pederson et al., 2015), and this sample is largely representative of national samples consisting of more recent veterans (see Table 2). Considering this alongside the financial- and time-based resources required for obtaining this sample, the method to reach these respondents is quite cost-effective. It is important to note that while this is not the first study to apply chain referral via social media as a method for survey recruitment (Cornwell & Schneider, 2017), it is the first of which I am aware that specifically targets military veterans¹⁷. As such, this project can be seen as having broader utility to research in this area by showing that this method can be applied to the veteran population and is possibly less resource-intensive than seeking data from governmental or veteran organizations directly.

¹⁶ Some veterans’ organizations will allow for the in-person distribution of research surveys to their members if coordinated through the national-level organization by a fellow member.

¹⁷ Pederson and colleagues (2015) used Facebook to recruit young adult veterans for mental health research, however, their recruitment method involved the use of Facebook advertising services, not chain-referrals.

Theory Implications

Second, this study has three key theoretical implications for this area of research. This study presents evidence of: 1) mixed support for the Violent Veteran Model, 2) mixed support for the Self-Medication Hypothesis among veterans, and 3) the necessity of an integrated theoretical approach in this area of study.

The Violent Veteran Model. The current study can be seen as partially supporting the Violent Veteran Model (VVM) of veteran offending. This is demonstrated through the expression of the structural model, which shows that the greater the amount of combat an individual is exposed to (the Combat Exposure Severity measure), the more post-military criminal offenses an individual is likely to engage in. Further, the indirect effect of months deployed on the number of post-military offenses becomes positive when mediated by combat exposure.

Despite such findings, there are factors that limit the favorability of interpretation of Archer and Gartners' (1976) theory. First, a reasonable proportion (23.88%), albeit a minority of the offenses examined in this current study, were violent in nature (e.g., robbery, assault, sexual assault). As a result, the findings of the current study are not wholly suggestive of the tenets of the VVM, which posit 'exposure to violence begets subsequent violence,' but rather, exposure to violence through combat 'exposure to violence begets subsequent bad behavior.' It is here that our findings are less supportive of the specific tenets of the VVM and more supportive of the broader life-course notion that those who engage in criminal acts do not specialize (Sampson & Laub, 1996; MacDonald et al., 2014). Additionally, supplementary analyses via OLS regression models, which only examined the components of the VVM (as the constituent parts of the

Combat Exposure Severity construct), failed to converge. Even if the model had been significant, it would have explained less than 3% of the variance in offending¹⁸. As a result, it may be the case that while the VVM is an important component of the pathway to offending for veterans, there is a need for a more integrated approach to explaining why veterans engage in crime.

The Self-Medication Hypothesis. The current study can be seen as partially supporting the Self-Medication Hypothesis (SMH), where veteran offending is concerned. This is demonstrated through the expression of the structural model, which shows that Mental Health Severity and Substance Use Severity had significant and positive effects on the number of post-military offenses an individual engaged in. Additionally, because the SMH purports that exposure to traumatic events (such as combat) influences mental health and substance use (Hawn et al., 2020; Khantzian, 1997; Possemato et al., 2015; Schumm & Chard, 2012; Shipherd et al., 2005), one would expect the indirect effects of combat through these factors to be both meaningful and positive. This was the case with the structural model.

It is important to note that exigent work in this area suggests that mental health and substance use influence one another (Schumm & Chard, 2012). As a result, the structural model was structured in a manner that allowed for the examination of this relationship and its subsequent indirect effects on offending. In the resultant model, the covariance of Mental Health Severity and Substance Use Severity was not significant, meaning these factors did not influence post-military offending through one another. While such findings may not be seen as conflicting with the core tenets of the SMH, they

¹⁸ Although it is likely meaningless to attempt to interpret the R^2 of a regression model with a $\chi^2 > 0.001$.

demonstrate that there may be some phenomena occurring within the veteran population concerning the intersection of mental health and substance use which is not altogether understood. As such, it is important for those who conduct research in this area to determine if the correlation between mental health issues and substance use is a universal phenomenon or a uniquely veteran occurrence.

The Need for an Integrated Approach to Veterans Research. One of the underlying focuses of the current project was to provide a framework for an integrated theoretical approach that explained offending among veterans better than any singular veteran-specific theory which currently existed. This has been accomplished through this project. Several supplemental analyses were conducted (see Table 12 for a summary of model fit), consisting of three OLS regression models that examined if the key constituent components of one of the theoretical mechanisms (VVM or SMH) explained more variance than the unified model. In both cases, the integrated model explained a greater proportion of variance than either singular model or the sum of both single models (approximately 3% and 44%, respectively, compared to 56% when integrated). While not wholly conclusive, these findings support the notion that a unified model is a significant improvement not only on either theoretical model but the additive variance in post-military offending they both explain.

Table 12

<i>Sample Variance Explained by Each Theoretical Model</i>		
	Prob > F	Adj. R ²
Violent Veteran Model	0.06	0.02
Self-Medication Hypothesis	0.00	0.44
Unified Model	0.00	0.56

Practical Implications

This dissertation provides three key contributions to policy where veterans are concerned. First, it provides evidence that there is a need for preventative screening and treatment for service members after deployments in order to deter subsequent crime. Second, there are new focal points for criminal justice agencies to address when serving justice-involved veterans. Finally, there is an apparent need for retroactive mental health treatment for the veteran community.

Preventative Screening. The primary focus of this project was predicated upon determining, to some extent, why veterans engage in offending after their military service. Ancillary to this, but nonetheless important, was determining to what degree veterans engage in offending, as the only statistics available in this area are focused on those whose offending results in criminal justice involvement (e.g., who is caught), rather than the total population of veterans engaging in crime. Perhaps shockingly, 48.85% of the sample reported engaging in one of the identified offenses after separating from the military (see Table 3).

In congruence with most existing literature, most of those who engaged in offending did not specialize but rather engaged in more than one type of offense¹⁹. Most commonly, individuals indicated that they had engaged in DUI/DWI or assaultive behavior. The prevalence of these behaviors among veterans should not be surprising, as they are the most common criminal offenses which are detected on U.S. Military Installations (Provost Marshall General, 2019). While the data in the current project are

¹⁹ While generally, the existing literature finds little support for the specialization of individual crimes, some emerging research has found support for the notion that offenders specialize in different types of crime such as violent offenses, economic crime, etc. (See MacDonald et al., 2014).

not situated in such a manner where it can be determined what number of each offense individuals committed, there have been multiple studies that suggest individuals who engage in offending do it somewhat regularly if not caught (Bushway, 2013).

Considering this alongside the mirroring of the prevalence of two of the most four common crimes on military installations (with the others being AWOL and minor traffic violations) in the data, there may be reason to believe that their post-military-offending patterns do not manifest after their separation from military service. Rather, it is likely that engaging in these offenses begins, to some extent, during their service. Considering this, there may be a need to intervene when such behavior is witnessed among military members.

This is not to say that there are not already strict penalties for these offenses within the Uniformed Code of Military Justice (UCMJ). Indeed, the military is a unique legal landscape where individuals may be prosecuted for crimes such as DUI/DWI and sentenced in civilian courts and then afterward given military punishments/ sentences in accordance with UCMJ. Rather, it is suggested that when these behaviors are witnessed in service members, there are more mechanisms made available that focus on intervention of the mental health factors which may be strongly associated with these behaviors (e.g., Post-Traumatic Stress Disorder). While in recent years, there have been numerous initiatives to do just this by the Department of Defense and respective branches (Bray et al., 2010; Office of Inspector General, 2020), some initiatives do not have “teeth.” That is, while individuals may opt for the treatment of issues such as PTSD in order to receive more lenient military and civilian sentences for DUI/DWI or other crimes, there are still legal and military consequences for their behaviors which

substantially influence their trajectories in military and civilian life (e.g., Field Grade Article-15s; Felony Convictions; Discharge). For interventions to truly be successful in ameliorating future “bad behavior,” there may be a need for a more *quid pro quo* perspective on criminogenic treatment for service members where appropriate²⁰.

Focal Points for Agencies. There are a variety of circumstances in which criminal justice agencies provide services for justice-involved veterans – most notably through veterans’ treatment courts (VTCs) and veteran programs and housing within prison. Over the last several decades, there has been a push in prison and the courts to integrate evidence-based practices in the treatment of justice-involved individuals (Bonigen et al., 2021; Klingele, 2015; MacKenzie, 2001). Along with examinations of what works in the criminal justice system, practitioners often rely on criminal justice research to develop or substantiate the methodology in programs.

There is little reason to believe that veteran programs are any different. Considering this, it may be the case that such programs are limited – take, for instance, the theoretical frameworks of the prevailing paradigms in this area, the VVM and SMH. As previously stated, these theoretical frameworks largely portray combat trauma as the origination point for criminogenic issues. It then follows that programs based on this literature will focus heavily on addressing the potentially deleterious effects of participating in combat. While this is not necessarily a problem, the current project finds that time spent deployed irrespective of combat is near as important in predicting offending patterns. Such findings demonstrate that there is likely a need to focus on the

²⁰ This would of course be situational in nature where more serious offenses are concerned. For example, fights among service members which do not result in serious injury might warrant consideration for such programs whereas premeditated homicide would not.

long-term effects of stress resultant from months and years spent in overseas deployment environments among veterans. Additionally, the effect of engaging in substance use is over twice as strong as the effect of combat is on offending patterns. Considering this, there may be a need to focus on traditional non-military criminogenic factors as well and reframe the way substance use is addressed in such programming, especially if it is normally attributed to combat.

Retroactive Universal Mental Health Treatment. Next, the current project demonstrates a need for an expanded focus on the mental health treatment of veterans. As previously mentioned, in the current sample, over a quarter of individuals demonstrated they had been diagnosed with Post-Traumatic Stress Disorder. Additionally, around a fifth of respondents indicated that they had been diagnosed with another generalized anxiety disorder and/ or depression. The mean number of mental health diagnoses for those who had at least one was 2.26. Such figures, alongside the demonstrated significant effect of mental health of offending patterns, demonstrate this issue may not only negatively impact the quality-of-life among veterans but may also have far-reaching social and fiscal consequences for society through disproportionate offending among veterans.

Policy groups and the Veterans Administration (VA) have been aware of such issues for some time (Myers, 1915). Specifically, over the last 20 years and the onset of the Global War on Terror, there has been a concerted effort to address mental health issues among service members returning from deployments overseas. This has resulted in a renewed and increased focus on the mental health of those who have served after they return to the United States. As part of the loose connection of such initiatives, the

VA has made great strides in aiding in the delivery of mental health treatment to veterans. However, it is important to note that while the VA may connect veterans to treatment programs, unless veterans are rated for a service-connected disability which is a mental health issue, former service members are often required to pay for such treatment at least until a VA rating has been established. Fortunately, it may be the case that such issues are likely to not pose a problem for future generations of veterans, as assessment for a VA rating is now a standardized part of the military discharge process (Office of Under Secretary of Defense, 2016); however, these ratings are often not fully completed before discharge, and they may be of little benefit to those veterans who left the military before this policy was in effect and need a rating. To ameliorate the gap posed by the natural lag of formalizing a VA rating in addition to that encountered by servicemembers who were discharged before recent policy changes, it is recommended that broader federal legislation and funding is provided to obtain free mental healthcare for any veteran of a foreign war.

Limitations and Future Research Directions

Although this dissertation provides a thorough examination of how deployments, subsequent combat events, mental health, and substance use influence post-military service offending among veterans, there are several limitations that must be acknowledged. These limitations are presented in the current section and paired with strategies to address those limitations.

First, the representativeness and generalizability of this study are somewhat unknown. This is not an uncommon issue with statistical research from a variety of fields (Blanton & Jaccard, 2008; Kukull & Ganguli, 2012). Where representativeness is

concerned, the sample in the current project can be compared to the broader veteran population. As provided in Table 2, it appears that the sample in the current study is not representative of the broader veteran population but rather those who served in the Post-9/11 Era. This is not necessarily surprising given that 80% of the sample were Post-9/11 veterans, and an additional 13% served in the time period between 1990 and 2001. In short, the sample employed in this study appears to be representative of recent veterans. However, it is important to note that unobserved covariate bias where the current sample and broader population are concerned may mask key differences.

Largely, the generalizability of a given sample is predicated upon how a sample is situated within a larger population it is representative of (Kukull & Ganguli, 2012). That is, a larger absolute sample or proportion of a given population reduces the error of the observed mean of the phenomena, and simultaneously, observed phenomena of the sampling approach the true mean of the population. In short, this provides that the current study likely has high external validity where Post-9/11 veterans are concerned, but the results of this project may not be applicable to the older veteran population. While not necessarily a limitation, as there is arguably a more pressing need to study and provide support for more recent veterans, the issues discussed in this dissertation are prevalent among veterans from all service eras. So, to ameliorate the questions of external validity where the current models are concerned, it is likely that future research focuses on obtaining samples that are representative of veterans from all service eras. To obtain such data, however, it is likely that researchers will need to partner with national-level veterans' organizations.

Second, the response accuracy of respondents should be considered when interpreting the results of the current study. In some cases, respondents were asked to recall information from military service which occurred years before and was traumatic in nature. This is notable because mental health issues such as PTSD have complicated interplays with memory coding and retrieval (Lapidow & Brown, 2015; Swain et al., 2021). Further, due to the nature of the local notables employed in the current study and their stature in the veteran community, it is possible that there were social desirability effects on survey responses. Considering this alongside the length of the survey, it is possible that survey fatigue or general reluctance to share information (such as that pertaining to their mental health) occurred. Additional precautions could be taken in order to ensure the accuracy of responses in the future. This may include strategies such as one-on-one semi-structured interviews, life-history qualitative interview approaches, or embedding repeat and attention-check questions into future iterations of the survey employed.

Third, there is the potential for measurement inconsistency. While the current project employed many standardized questions to obtain key measures, there is still the issue of interpretability around these questions. For instance, respondents were asked, *“Approximately how many firefights did you take part in across all your deployments?”*. Their responses to this measure helped form the “firefights” component of the latent construct combat exposure severity. The problem therein is how does one define a firefight, and is that definition universally recognized by respondents? The inexperienced soldier who is not in a combat arms occupational specialty (MOS) may assume an IED or a few mortars detonating is a firefight. A young infantryman may require a few shots to

be fired to consider an event a firefight. Still, a seasoned special forces soldier may only count sustained engagements with many rounds traded between friendly forces and the enemy to be a firefight in earnest. If one thinks of current measures of many of these experiences in terms of specificity and sensitivity, it could be interpreted that they are neither specific nor sensitive. To be clear, these and similar measures have been used in quite excellent recent research such as that derived from the National Longitudinal Study of Adolescent to Adult Health (McQueen et al., 2015); however, there is room for improvement. Perhaps the most parsimonious approach to this problem is providing definitions for events with which respondents have potentially ambiguous understandings. For example, one which may be employed as a definition for a firefight in future research could be “*when enemy or friendly forces traded small arms or indirect fire for any reason over a period of five or more minutes.*” While there are limitations and issues with definitions such as this, their implementation will reduce the potential for measurement inconsistency and enhance internal validity.

Last, while time ordering was closely accounted for, in the end this project employed a cross-sectional survey design. Given the complex and sensitive nature of mental health, substance use, and military trauma-based issues, a cross-sectional study is not the ideal design for such topics. Future research would benefit from taking a longitudinal approach to this type of research. Specifically, it is my suggestion that studies in which cohorts of newly separated veterans are surveyed or interviewed at regular intervals are strongly considered. Outside of such methods, it is possible to conduct quasi-longitudinal analysis with those who have been separated from the military for some time. Data collection from the current study did so by including measures to

temporally bind multiple factors such as mental health treatment, substance use, offending, etc. relative to military service status. Most dynamic factors in the project were measured retrospectively as they were before, during, and after military service. While such analyses were outside the scope of the current project²¹, it is my intent to take a quasi-longitudinal approach to analyzing this data in the future.

Conclusion

This dissertation adds to the limited body of knowledge regarding the pathways to engaging in offending taken by military veterans. Using a mixture of OLS regression and Structural Equation Modeling, I was able to demonstrate the validity of an expanded unified theoretical framework which takes into account portions of the Violent Veteran Model of offending, Self-Medication Hypothesis, and makes novel additions to both. My results as to the statistical veracity of both theories in a unified model were somewhat mixed but largely my results support existing research in the field. Further, my supplemental analyses provide statistical justification for the need of a revised and unified framework to understand veteran offending.

Overall, this dissertation provides insight into the phenomena of veteran offending in a manner which is more methodologically rigorous than prior studies in this area. Further, the project provides numerous research, theory, and policy implications not only aimed at preventing or addressing criminal offending among veterans, but also focused on providing more holistic aftercare for those returning home from deployments overseas whether or not they directly experienced the trauma of combat. Such interventions are necessarily centered at the intersection of mental health and the criminal

²¹ The best dissertation is a done dissertation (Randa, 2020).

justice system – a nexus which has been of interest for many researchers and practitioners for multiple reasons for some time. With the recent withdrawal from Afghanistan and Iraq, it is likely that force reductions will commence. This will result in many young veterans leaving the military – and the informal social control it provides. If the issues of combat trauma, mental health, and substance use are addressed appropriately in these young veterans, then it is likely that there is little reason to worry about their reintegration into society. However, if the effectiveness of their resources in such areas are reflective of the current project's sample of recent veterans, then there is more work to be done to ensure their reintegration process is more successful than those seen after the Vietnam War.

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APPENDIX A**IRB Approval**

TO: Wesley Smith, Erin Orrick FROM: SHSU IRB

PROJECT TITLE: Veteran and Military Criminal Justice Involvement PROTOCOL #: IRB-2020-163

SUBMISSION TYPE: Initial

ACTION: Exempt

DECISION DATE: July 2, 2020

EXEMPT REVIEW CATEGORY: Category 2.(i). Research that only includes interactions involving educational tests (cognitive, diagnostic, aptitude, achievement), survey procedures, interview procedures, or observation of public behavior (including visual or auditory recording).

The information obtained is recorded by the investigator in such a manner that the identity of the human subjects cannot readily be ascertained, directly or through identifiers linked to the subjects.

Greetings,

Thank you for your submission of Initial Review materials for this project. The Sam Houston State University (SHSU) IRB has determined this project is EXEMPT FROM IRB REVIEW according to federal regulations. Since Cayuse IRB does not currently possess the ability to provide a "stamp of approval" on any recruitment or consent documentation, it is the strong recommendation of this office to please include the following approval language in the footer of those recruitment and consent documents: IRB-2020-163/July 2, 2020. We will retain a copy of this correspondence within our records.

* What should investigators do when considering changes to an exempt study that could make it nonexempt?

It is the PI's responsibility to consult with the IRB whenever questions arise about whether planned changes to an exempt study might make that study nonexempt human subjects research. In this case, please make available sufficient information to the IRB so it can make a correct determination.

If you have any questions, please contact the IRB Office at 936-294-4875 or irb@shsu.edu. Please include your project title and protocol number in all correspondence with this committee.

Sincerely,

Chase Young, Ph.D. Chair, IRB

Hannah R. Gerber, Ph.D. Co-Chair, IRB

APPENDIX B

Informed Consent



Sam Houston State University

Consent for Participation in Research

WHAT IS THE PURPOSE, PROCEDURES, AND DURATION OF THE STUDY?

I am conducting this research to examine the influence of military service on factors such as physical health, mental health, substance use, and criminal justice involvement. I am conducting this research under the direction of Dr. Erin Orrick, Associate Professor in the College of Criminal Justice. If you agree to participate, you will be asked to complete the following survey. The survey should take about 30 minutes to complete. You have the right to not answer any question, and to stop participation at any time.

WHAT ARE REASONS YOU MIGHT CHOOSE TO VOLUNTEER FOR THIS STUDY?

This study will help advance knowledge of veterans and military personnel. Specifically, your answers will help us learn why veterans may or may not become involved in the criminal justice system, engage in substance use, or contemplate suicide.

WHAT ARE REASONS YOU MIGHT CHOOSE NOT TO VOLUNTEER FOR THIS STUDY?

This study will ask questions regarding participants criminal justice, substance use, mental health, and combat histories. While the survey is anonymous and no personally identifiable data will be collected at any point, these questions may be uncomfortable for some participants to answer. Therefore, you are free to skip any questions that make you feel uncomfortable and you can stop participating at any time during the survey.

DO YOU HAVE TO TAKE PART IN THE STUDY?

If you decide to take part in the study, it should be because you really want to volunteer. You will not lose any services, benefits, or rights you would normally have if you choose not to volunteer.

WHAT ABOUT MY PRIVACY?

Because questions within the following survey are private in nature, at no time will your personally identifiable information be recorded in the survey.

Please take the survey in private if possible and do not discuss your answers with anyone else.

After completing the survey, it is advisable that you clear your internet browser data cache (cookies) and delete your browsing history.

Your survey responses will be kept confidential to the extent of the technology being used. Qualtrics collects IP addresses for respondents to surveys they host; however, the ability to connect your survey responses to your IP address has been disabled for this survey. That means that I will not be able to identify your responses. You should, however, keep in mind that answers to specific questions may make you more easily identifiable. The security and privacy policy for Qualtrics can be viewed at <https://www.qualtrics.com/security-statement/>.

WHAT IF YOU HAVE QUESTIONS, SUGGESTIONS OR CONCERNS?

The person in charge of this study is Wesley T. Smith of the Sam Houston State University Department of Criminal Justice and Criminology who is working under the supervision of Dr. Erin A. Orrick. If you have questions, suggestions, or concerns regarding this study or you want to withdraw from the study their contact information is:

Wesley Smith
Doctoral Research Assistant

Erin A. Orrick
Associate Professor

If you have any questions, suggestions or concerns about your rights as a volunteer in this research, contact the Office of Research and Sponsored Programs – Sharla Miles.

By selecting "I Agree" and proceeding with the survey, you indicate that you have read the informed consent above and agree to participate in this research.

Select one.

- I Agree
- I Do Not Agree

APPENDIX C

Survey Tool

Section One: Military Experience

In this section, we will ask a variety of questions regarding your military experiences. Please provide complete and correct answers to the best of your ability.

Have you ever served in the United State Military?

- Yes
 No

Which choice best describes your current military status?

- Active Duty
 Reservist
 Guardsman
 Veteran
 Retiree

Please identify the branch and components you have served in, as well as how long have you served in each.

Do so by entering numbers in the appropriate year/ month rows next to the applicable components/ branches. For branches you have never served in you may leave those rows blank, or enter "0."

	Years	Months
Army	<input type="checkbox"/>	<input type="checkbox"/>
Army Reserve	<input type="checkbox"/>	<input type="checkbox"/>
Army National Guard	<input type="checkbox"/>	<input type="checkbox"/>
Air Force	<input type="checkbox"/>	<input type="checkbox"/>
Air Force Reserve	<input type="checkbox"/>	<input type="checkbox"/>
Air National Guard	<input type="checkbox"/>	<input type="checkbox"/>
Navy	<input type="checkbox"/>	<input type="checkbox"/>
Navy Reserve	<input type="checkbox"/>	<input type="checkbox"/>
Marine Corps	<input type="checkbox"/>	<input type="checkbox"/>
Marine Corps Reserve	<input type="checkbox"/>	<input type="checkbox"/>
Coast Guard	<input type="checkbox"/>	<input type="checkbox"/>
Coast Guard Reserve	<input type="checkbox"/>	<input type="checkbox"/>

At what age did you initially enter the military?

Select one.

- [Drop down list including ages from 17 -50]

During what time periods did you serve in the military?

Select all that apply.

- Prior to 1955
- 1955 to 1975 (Vietnam War Era)
- 1976 to 1989 (Gold War Era)
- 1990 to 2001 (Gulf War Era)
- 2001 or later (Global War on Terror Era)

What Military Occupational Specialties (MOS) did you hold while in the military?

Please separate occupational specialties by a semi-colon or “;”.

What is the highest pay grade you have attained?

Select one.

- [Drop down list including pay grades ranging from E1 – O10]

Have you ever been discharged from the military?

Select one.

- Yes
- No

At what age was your last discharge from the military?

Select one.

- [Drop down list including ages from 17 – 65]

What was the classification of your latest discharge?

If your charge was upgraded, please indicate the original disposition.

- Honorable discharge
- General Under Honorable Conditions discharge
- Other Than Honorable discharge
- Bad Conduct discharge
- Dishonorable discharge
- Entry-level Separation
- Medical Separation
- Separation for Convenience of the Government

Have you ever been deployed to a combat zone?

Select one.

- Yes
- No

How many times have you deployed to combat zones?

Select one.

- [Drop down list including range from 1 – 30]

Please indicate the number of months you served on each of your combat deployments.

Round to the nearest whole month.

Deployment One	[Drop down list including range from 1 – 15 Months]
Deployment Two	[Drop down list including range from 1 – 15 Months]
Deployment Three	[Drop down list including range from 1 – 15 Months]
Deployment Four	[Drop down list including range from 1 – 15 Months]
Deployment Five	[Drop down list including range from 1 – 15 Months]
Deployment Six	[Drop down list including range from 1 – 15 Months]
Deployment Seven	[Drop down list including range from 1 – 15 Months]
Deployment Eight	[Drop down list including range from 1 – 15 Months]
Deployment Nine	[Drop down list including range from 1 – 15 Months]
Deployment Ten	[Drop down list including range from 1 – 15 Months]
Deployment Eleven	[Drop down list including range from 1 – 15 Months]
Deployment Twelve	[Drop down list including range from 1 – 15 Months]
Deployment Thirteen	[Drop down list including range from 1 – 15 Months]
Deployment Fourteen	[Drop down list including range from 1 – 15 Months]
Deployment Fifteen	[Drop down list including range from 1 – 15 Months]
Deployment Sixteen	[Drop down list including range from 1 – 15 Months]
Deployment Seventeen	[Drop down list including range from 1 – 15 Months]
Deployment Eighteen	[Drop down list including range from 1 – 15 Months]
Deployment Nineteen	[Drop down list including range from 1 – 15 Months]
Deployment Twenty	[Drop down list including range from 1 – 15 Months]

During your combat deployment(s), approximately how many times did you engage enemies in firefights?

Please enter a whole number. If never, indicate with "0".

During your combat deployment(s), were you ever wounded or injured?

Select one.

- Yes
- No

During your combat deployment(s), did you ever kill or think you killed someone?

Select one.

- Yes
- No
- Unsure

During your combat deployment(s), did you ever see anyone wounded, killed, or dead?

Please check all that apply.

- Yes, Coalition or ally
- Yes, Civilian
- Yes, enemy
- No

Section Two: Mental Health

Mental Health

In this section, we will ask a variety of questions regarding experiences your mental health and mental healthcare history. Please provide complete and correct answers to the best of your abilities.

Please indicate if a doctor, nurse, or other health care provide has ever told you that you have one or more of the following: *Please check all that apply.*

- Anxiety or Panic Disorder
- Schizophrenia or a Schizoaffective Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Bipolar or Manic Depression
- Clinical Depression

Please indicate if you experienced the previously mentioned health conditions before your military service.

Select "yes" to indicate that you had the listed health issue prior to the military.

Selecting "no" indicates that this health issue developed during or after your military service.

	Yes	No
Anxiety or Panic Disorder	<input type="checkbox"/>	<input type="checkbox"/>
Post-Traumatic Stress Disorder (PTSD)	<input type="checkbox"/>	<input type="checkbox"/>
Clinical Depression	<input type="checkbox"/>	<input type="checkbox"/>
Schizophrenia or a Schizoaffective Disorder	<input type="checkbox"/>	<input type="checkbox"/>
Bipolar or Manic Depression	<input type="checkbox"/>	<input type="checkbox"/>

Please indicate if the health conditions you previously indicated you have been diagnosed with are related to your military or combat experience.

Please check all that apply.

	Yes	No
Anxiety or Panic Disorder	<input type="checkbox"/>	<input type="checkbox"/>
Post-Traumatic Stress Disorder (PTSD)	<input type="checkbox"/>	<input type="checkbox"/>
Clinical Depression	<input type="checkbox"/>	<input type="checkbox"/>
Schizophrenia or a Schizoaffective Disorder	<input type="checkbox"/>	<input type="checkbox"/>
Bipolar or Manic Depression	<input type="checkbox"/>	<input type="checkbox"/>

Have you spent one day or more in a facility where you were treated for a mental illness?

Please check all that apply.

- Yes, before my military service
- Yes, during my military service
- Yes, after my military service
- No

Have you ever received counseling, psychological testing, or any other mental health therapy services?

Please check all that apply.

- Yes, before my military service
- Yes, during my military service
- Yes, after my military service
- No

Is there any history of mental illness in your immediate family?

(e.g., father, mother, siblings, etc.)

Yes

No

Over the last two weeks, how often have you been bothered by any of the following problems?

Please provide an answer for each problem.

	Not at all Days	Several	More than half the days	Nearly every day
Feeling nervous, anxious, or on edge	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Not being able to stop or control worrying	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Worrying too much about different things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble relaxing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Being so restless that it is hard to sit still	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Becoming easily annoyed or irritable	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling afraid as if something awful might happen	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Little interest or pleasure in doing things	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling down, depressed, or hopeless	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble falling or staying asleep, or sleeping too much	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling tired or having little energy	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Poor appetite or overeating	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Feeling bad about yourself – or that you are a failure or have let yourself or your family down	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Trouble concentrating on things, such as reading the	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

newspaper or watching television	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Moving or speaking so slowly that other people could have noticed? Or the opposite – being so fidgety or restless that you have been moving around a lot more than usual	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Thoughts that you would be better off dead or hurting yourself in some way	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Have you ever thought about committing suicide?

Please check all that apply.

- Yes, before my military service
- Yes, during my military service
- Yes, after my military service
- No

Have you ever attempted to commit suicide?

Select one.

- Yes
- No

Do you believe that being a member of the military negatively influenced your mental health?

Select one.

- Yes
- No

Section Three: Substance Use

Substance Use

In this section, we will ask a variety of questions regarding experiences you may or may not have had as they relate to prescription medication as well as illicit substances.

Please provide complete and correct answers to the best of your abilities.

Have you ever been prescribed the following medication?

Select all that apply.

- Opioid painkillers (e.g., Codeine, Vicodin, OxyContin, Percocet)
- Sedatives (e.g., Phenobarbital, Benzodiazepines, Valium, Xanax)
- Stimulants (e.g., Adderal, Ritalin, Bennies)
- Anti-psychotic medications (e.g., Quetiapine, Olanzapine, Aripiprazole)
- Sleep medication (e.g., Ambien, Sonata, Lunesta)

How long were you prescribed opioid painkillers? *Please enter the approximate total time you have been prescribed this medication.*

- Less than 6 months
- Between 6 to 12 months
- Between 12 to 24 months
- Over 24 months

How long were you prescribed sedatives? *Please enter the approximate total time you have been prescribed this medication.*

- Less than 6 months
- Between 6 to 12 months
- Between 12 to 24 months
- Over 24 months

How long were you prescribed stimulants? *Please enter the approximate total time you have been prescribed this medication.*

- Less than 6 months
- Between 6 to 12 months
- Between 12 to 24 months
- Over 24 months

How long were you prescribed anti-psychotic medications? *Please enter the approximate total time you have been prescribed this medication.*

- Less than 6 months
- Between 6 to 12 months
- Between 12 to 24 months
- Over 24 months

How long were you prescribed sleep medications? *Please enter the approximate total time you have been prescribed this medication.*

- Less than 6 months
- Between 6 to 12 months
- Between 12 to 24 months
- Over 24 months

Have you ever intentionally misused prescription medications in a manner not consistent with their prescription?

(e.g., taking prescription medication not prescribed to you, taking painkillers for recreational purposes, etc.)

	Daily	Weekly	Once every week or so	Monthly	Less than once a month	I used to but I no longer use this drug	I have never used this drug
Opioid painkillers (e.g., Codeine, Vicodin, OxyContin, Percocet)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sedatives (e.g., Phenobarbital, Benzodiazepines, Valium, Xanax)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stimulants (e.g., Adderal, Ritalin, Bennies)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anti-psychotic medications (e.g., Quetiapine, Olanzapine, Aripiprazole)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sleep medication (e.g., Ambien, Sonata, Lunesta)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Have you intentionally misused prescription medications in the last 6 months?

Select one.

- Yes
- No

How often do you intentionally misuse prescription medications?

Select one.

- Daily
- Weekly
- Once every week or so
- Monthly
- Less than once a month

Do you believe that your misuse of prescription medications caused any of the following problems?

Select all that apply.

- Problems with family, friends, or people at work or school.
- Emotional health problems (such as feeling depressed or empty, feeling irritable or aggressive, feeling paranoid or confused, feeling anxious or tense, being jumpy or easily startled).
- Physical health problems (such as persistent cough, sore throat or sinus problems, heart pounding, headaches or dizziness, or sexual difficulties)
- No significant issues from misuse of prescription medications.

Have you ever continued to misuse prescription medications after you realized they were causing you the following problems?

Select all that apply.

- Problems with family, friends, or people at work or school.
- Emotional health problems (such as feeling depressed or empty, feeling irritable or aggressive, feeling paranoid or confused, feeling anxious or tense, being jumpy or easily startled).
- Physical health problems (such as persistent cough, sore throat or sinus problems, heart pounding, headaches or dizziness, or sexual difficulties)
- No significant issues from misuse of prescription medications.

Have you ever used any of the following drugs, and how often?

Select how often, to include never if you never use these drugs.

	Daily	Weekly	Once every week or so	Monthly	Less than once a month	I used to but I no longer use this drug	I have never used this drug
Cannabinoids (e.g., Marijuana, Hashish)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Opioids (e.g., Heroin, Opium)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Stimulants (e.g., Cocaine, Amphetamine, Methamphetamine)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Club Drugs (e.g., Ecstasy, Rohypnol, GHB)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Dissociative Drugs (e.g., Ketamine, PCP, Salvia)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hallucinogens (e.g., LSD, Mescaline, Psilocybin)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Anabolic Steroids (e.g., Anadrol, Depo-testosterone)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Do you think that your use of illegal drugs caused any of the following problems?

Select all that apply.

- Problems with family, friends, or people at work or school.
- Emotional health problems (such as feeling depressed or empty, feeling irritable or aggressive, feeling paranoid or confused, feeling anxious or tense, being jumpy or easily startled).
- Physical health problems (such as persistent cough, sore throat or sinus problems, heart pounding, headaches or dizziness, or sexual difficulties)
- No significant issues from misuse of illegal drugs.

Have you ever continued to use illegal drugs after you realized they were causing you the following problems?

Select all that apply.

- Problems with family, friends, or people at work or school.
- Emotional health problems (such as feeling depressed or empty, feeling irritable or aggressive, feeling paranoid or confused, feeling anxious or tense, being jumpy or easily startled).
- Physical health problems (such as persistent cough, sore throat or sinus problems, heart pounding, headaches or dizziness, or sexual difficulties)
- No significant issues from misuse of illegal drugs.

Have you used illegal drugs to cope with the following issues?

Select all that apply.

- Anxiety or Panic Disorder
- Post-Traumatic Stress Disorder (PTSD)
- Clinical Depression
- Schizophrenia or Schizoaffective Disorder
- Bipolar or Manic Depression

Do you think that your misuse of prescription medication or use of illegal drugs is related to your military service or combat experience?

Select one.

- Yes
- No

Section Four: Crime and Criminal Justice Experiences

Crime and Criminal Justice Experiences

In this section, we will ask a variety of questions regarding your experience with the criminal justice system, committing crimes, and being a victim of a crime.

Not including combat, have you ever done any of the following before, during, or after your military service?

Select all that apply.

	Before the Military	During the Military	After the Military	I have never done this
Stolen or taken something that did not belong to you	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entered someone else's house or business without their permission with the purpose of taking their property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened to use a weapon or force to get something from another person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Been in a fistfight or fight with another person	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deliberately damaged someone else's property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Sold marijuana or other drugs	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Driven while high on drugs or drunk	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Paid someone with drugs or money to have sex	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had sex with someone who didn't want to	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intentionally set someone else's property on fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used someone else's identity to purchase things in a store or online without their consent or withdrew funds from their bank account without permission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Not including combat, has anyone ever done any of the following to you before, during, or after your military service?

Select all that apply.

	Before the Military	During the Military	After the Military	I have never done this
Stolen or taken something from you without your permission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Entered your home without your permission for the purpose of taking your property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Threatened to use a weapon or force to take something from you (e.g., money, belongings)	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Hit you with their fists or another weapon	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Deliberately damaged your property	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Had sex with you when you did not want to or were unable to consent	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Intentionally set your property on fire	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Used your identity to purchase things in a store or online without your consent or withdrew funds from your bank account without permission	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Have you ever been arrested?

Select one.

- Yes
 No

During what time periods have you been arrested?

Select all that apply.

- Prior to my military service
- During my military service
- After my military service

Who were you arrested by during your time in the military?

Select all that apply.

- Military Police
- Civilian Police
- Both Military and Civilian Police

How old were you the first time you were arrested?

Please round to the nearest year.

- [Drop down list including ages from 1 – 100]

How many time were you arrested before you joined the military?

Please select the appropriate number.

- [Drop down list including numbers from 1 – 100]

How many times were you arrested during your military service?

Please select the appropriate number.

- [Drop down list including numbers from 1 – 100]

How many times have you been arrested since your military service ended?

Please select the appropriate number.

- [Drop down list including numbers from 1 – 100]

Did you engage in the misuse of prescription medication or the use of illegal drugs before the first time you were arrested?

Select one.

- Yes
- No

Did your misuse of prescription medication or the use of illegal drugs contribute to one or more of your arrests?

Select one.

- Yes
- No

Have you ever been convicted of a felony?

Select one.

- Yes
- No

Was this in a military court or tribunal?

Select one.

- Yes
- No

How many times have you been convicted of a felony?

Please select the appropriate number.

- [Drop down list including numbers from 1 – 100]

What type of felony were you convicted of?

Select all that apply.

- Burglary
- Robbery
- Homicide
- Rape
- Arson
- Drug Sales
- Kidnapping
- Motor Vehicle Theft
- Larceny
- Assault
- Sexual Assault
- Drug Possession
- Drug Trafficking
- Other

What was the “other” offense you were convicted of?

Have you ever been incarcerated in prison or jail?

Please select the most appropriate answer.

- Yes, prison
- Yes, jail
- Both prison and jail
- No

What type of facilities have you been incarcerated in?

Select all that apply.

- A civilian prison or jail
- A military brig, Disciplinary barracks, correctional facility, or prison

What is the total time you have spent in prison?

Please enter the number of years and months you have spent in prison.

- Years _____
- Months _____

What is the total time you have spent in jail?

Please enter the number of years and months you have spent in jail.

- Years _____
- Months _____

Has anyone in your immediate family ever been incarcerated?

(e.g., father, mother, siblings, etc.)

- Yes
- No

Section Five: Background and Demographic Information**Background and Demographic Information**

In this section, we will ask a variety of questions regarding your background. Please provide complete and correct answers to the best of your abilities.

What is your age?

- [Drop down list including ages from 1 – 100]

What is your gender?

Select one.

- Male
- Female
- Other

Please specify your gender or how you self-describe.

If more than one, separate with a semicolon “;”.

Do you identify as transgender or have a transgender history?

Select one.

- Yes
- No

What do you identify as your race or ethnicity?

Please check all that apply.

- White
- Black or African American
- American Indian or Alaska Native
- Asian
- Native Hawaiian or Pacific Islander
- Hispanic/ Latinx
- Other

Please specify the other racial/ ethnic group(s) you identify as a member of.

If more than one, separate with a semicolon “;”.

What is your sexual orientation?

Select one.

- Heterosexual
- Homosexual
- Bisexual
- Other

Please specify your sexual orientation.

If more than one, separate with a semicolon “;”.

What is your marital status?

Select one.

- Single, never married
- Married
- Separated
- Divorced
- Widowed

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

Select one.

- Less than High School
- High school graduate
- Some college, technical training, or an associate degree
- Four-year degree
- Graduate degree

Which most accurately describes your current employment status?

Select all that apply.

- Employed – Full time
- Employed – Part time
- Unemployed
- Student
- Retired

Besides yourself, have any of your immediate family members served in the military?

(e.g., father, mother, siblings)

- Yes
- No

Besides yourself, have any of your immediate family members worked in law enforcement?

(e.g., father, mother, siblings)

- Yes
- No

Section Six: Survey Closing

As you may know, the relationship between criminal justice involvement, substance use, suicide, and combat is complicated. We would like to thank you for taking time out of your day to help us learn why veterans may or may not engage in these types of behaviors.

Is there anything you would like to tell the research team we may have missed which is important?

How did you hear about this survey?

Select one.

- Word of mouth
- Email
- Facebook
- Instagram
- Twitter
- Other

Thank you for your participation in this research!

If you have questions, comments, or concerns, please contact Wesley T. Smith at wesley.t.smith@shsu.edu.

APPENDIX D

Social Media Solicitations

Hello veterans and military personnel on Instagram!

For those that don't know me, I am an Active Duty Army and National Guard Veteran as well as a Doctoral Student at Sam Houston State University in, Texas. I am conducting a research project which I must do in order to receive my PhD in Criminal Justice and Criminology.

For some time, research has suggested that veterans are disproportionately involved in the CJ system, using illicit drugs, and more likely commit suicide. Unfortunately, there are still large gaps in our understanding of these areas.

Please consider taking the survey at the following link to help e research and understand important information about the unique experiences of veterans.

Some of you may have never deployed, had issues with the CJ system, faced mental health problems, or engaged in substance use. This does not mean your answers are not important or valuable. Please consider taking this survey regardless of your military or CJ experiences.

https://shsu.co1.qualtrics.com/jfe/form/SV_efAVIZhq3qQ780Z

Feel free to share this link with others!

Thank you for your service!

Photo as required with Instagram posting:

Hello!

My name is Wesley T. Smith. I am a doctoral student at Sam Houston State University in Huntsville, Texas. Before attending college, I served 6 years in the United States Army on active duty. While pursuing my bachelor's and master's degrees, I served in the Army National Guard. The survey I am asking you to participate in will help in collecting anonymous data which can be used not only to complete my dissertation so that I may obtain my PhD, but also to shed some light on serious military and veterans issues our country currently faces.

Hello veterans and military personnel on Facebook!

For those that don't know me, I am an Active Duty Army and National Guard Veteran as well as a Doctoral Student at Sam Houston State University in, Texas. I am conducting a research project which I must do in order to receive my PhD in Criminal Justice and Criminology.

For some time, research has suggested that veterans are disproportionately involved in the CJ system, using illicit drugs, and more likely commit suicide. Unfortunately, there are still large gaps in our understanding of these areas.

Please consider taking the survey at the following link to help e research and understand important information about the unique experiences of veterans.

Some of you may have never deployed, had issues with the CJ system, faced mental health problems, or engaged in substance use. This does not mean your answers are not important or valuable. Please consider taking this survey regardless of your military or CJ experiences.

https://shsu.co1.qualtrics.com/jfe/form/SV_efAVIZhq3qQ780Z

Feel free to share this link with others!

Thank you for your service

Subsequent comments on the master tweet will be employed to provide more information on the study.

Message 1 of 4

Veterans and military personnel on twitter,
If you would like to help me research and understand important information about the unique experiences of veterans, follow this link:

https://shsu.co1.qualtrics.com/jfe/form/SV_efAVIZhq3qQ780Z

Feel free to share this link with others!

Thank you for your service!

Message 2 of 4

For those of you who don't know me, I am an Active Duty Army and National Guard Veteran as well as a Doctoral Student at Sam Houston State University in, Texas. I am conducting a research project which I must do in order to receive my PhD in Criminal Justice and Criminology.

Message 3 of 4

For some time, research has suggested that veterans are disproportionately involved in the CJ system, using illicit drugs, and more likely commit suicide. Unfortunately, there are still large gaps in our understanding of these areas.

Message 4 of 4

Some of you may have never deployed, had issues with the CJ system, faced mental health problems, or engaged in substance use. This does not mean your answers are not important or valuable. Please consider taking this survey regardless of your military or CJ experiences.

Thanks!

APPENDIX E

Correlation Matrix of Combat Related Factors

Table 13

Correlation Matrix of Combat Related Factors

	Number of Firefights Experienced	Combat Trauma Exposure	Injured in Combat
Number of Firefights Experienced	1.00	–	–
Combat Trauma Exposure	0.31	1.00	–
Injured in Combat	0.30	0.40	1.00

APPENDIX F

Correlation Matrix of Mental Health Related Factors

Table 14

Correlation Matrix of Mental Health Related Factors

	Ever Institutionalized	Anxiety	PTSD	Depression	Schizophrenia	Bipolar/ Manic Depressive
Ever Institutionalized	1.00	–	–	–	–	–
Anxiety	0.26	1.00	–	–	–	–
PTSD	0.16	0.54	1.00	–	–	–
Depression	0.18	0.52	0.60	1.00	–	–
Schizophrenia	-0.01	0.16	0.36	0.30	1.00	–
Bipolar/ Manic Depressive	0.27	0.29	0.38	0.27	0.61	1.00

APPENDIX G

Correlation Matrix of Substance Use Related Factors

Table 15

Correlation Matrix of Substance Use Related Factors

	Illicit drug use	Prescription Medication Misuse	Problems from substance use
Illicit drug use	1.00	–	–
Prescript medication misuse	0.78	1.00	–
Problems from substance use	0.41	0.33	1.00

APPENDIX H

Supplementary OLS – Violent Veteran Model

Table 16

Supplementary OLS – Violent Veteran Model

	<i>b</i>	(SE)	β	VIF
Number of firefights experienced	0.00	(0.00)	0.03	1.13
Combat trauma exposure	0.06	(0.21)	0.02	126
Injured in combat	0.66*	(0.27)	0.17	1.23
N	217			
Adjusted R ²	0.02			

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

APPENDIX I

Supplementary OLS – Self Medication Hypothesis

Table 17

Supplementary OLS – Self-Medication Hypothesis

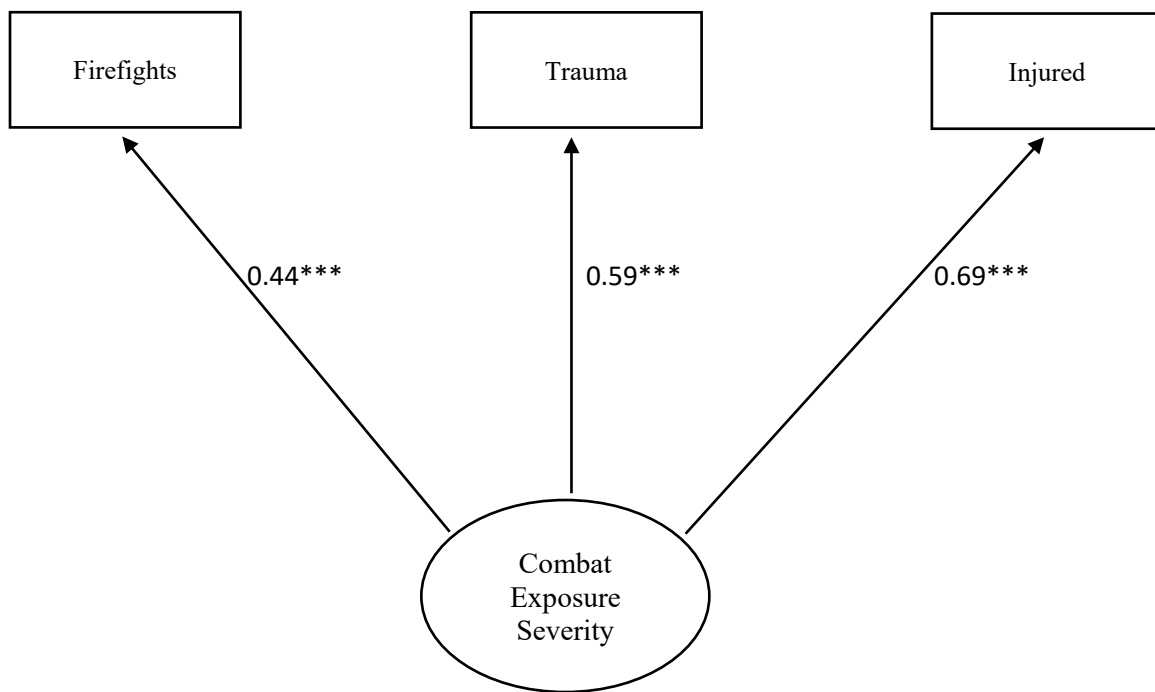
	<i>b</i>	(SE)	β	VIF
Ever institutionalized	0.44	(0.25)	0.09	1.32
Diagnoses	0.00	(0.00)	0.04	1.14
Anxiety	-0.01	(0.23)	0.00	1.68
PTSD	0.54*	(0.23)	0.16	1.94
Depression	0.25	(0.23)	0.07	1.77
Schizophrenia	-0.09	(0.47)	0.01	1.90
Bipolar/ Manic Depressive	0.39	(0.39)	0.07	2.00
Illicit drug use	0.08*	(0.03)	0.18	2.96
Prescript medication misuse	0.30***	(0.05)	0.45	2.68
Problems from substance use	-0.06	(0.08)	0.04	1.28
N	217			
Adjusted R ²	0.44			

*** $p < 0.001$ ** $p < 0.01$ * $p < 0.05$

APPENDIX J

Latent Construct – Combat Exposure Severity

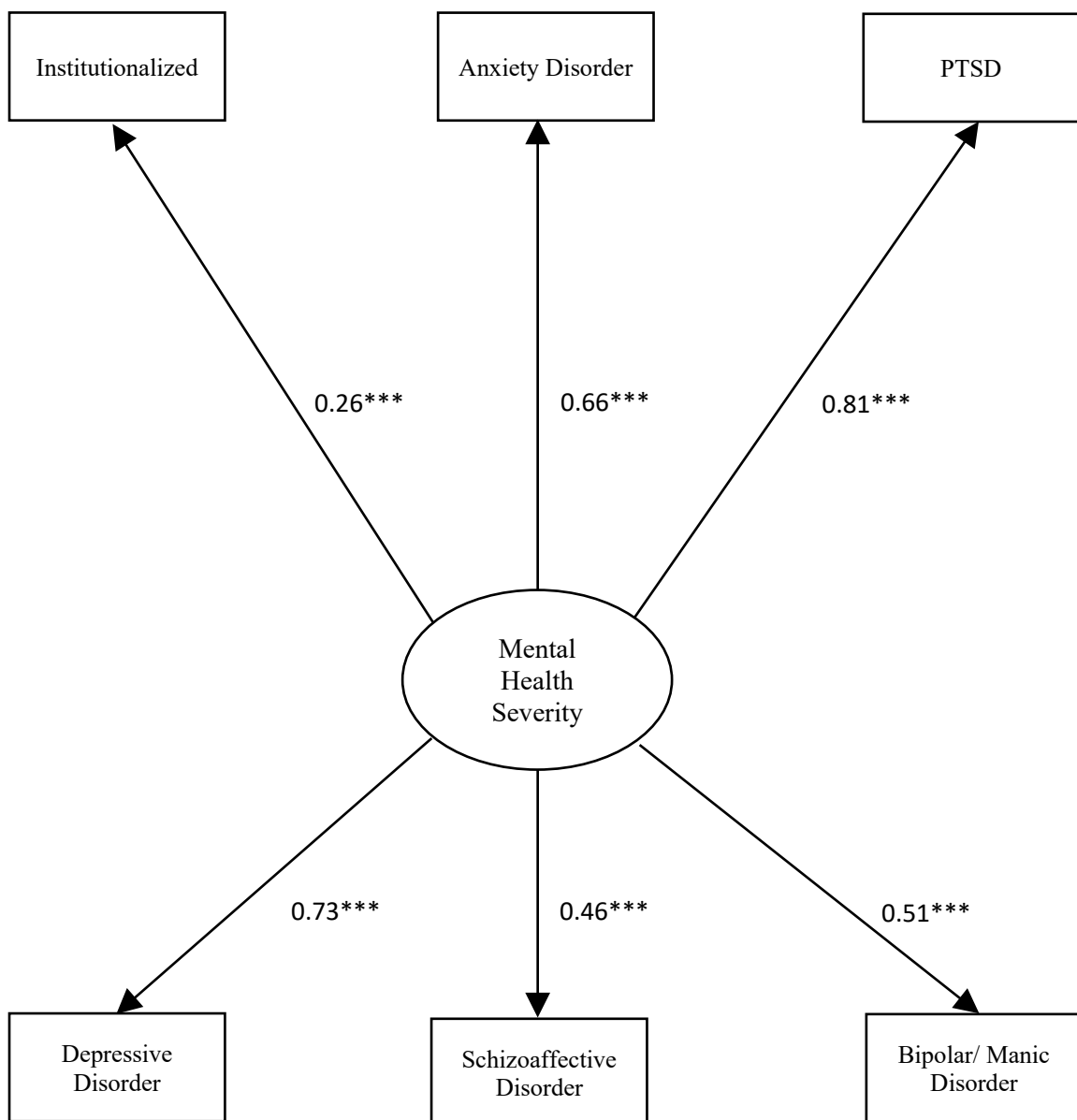
Figure 4

Combat Exposure Severity Structural Model

APPENDIX K

Latent Construct – Mental Health Severity

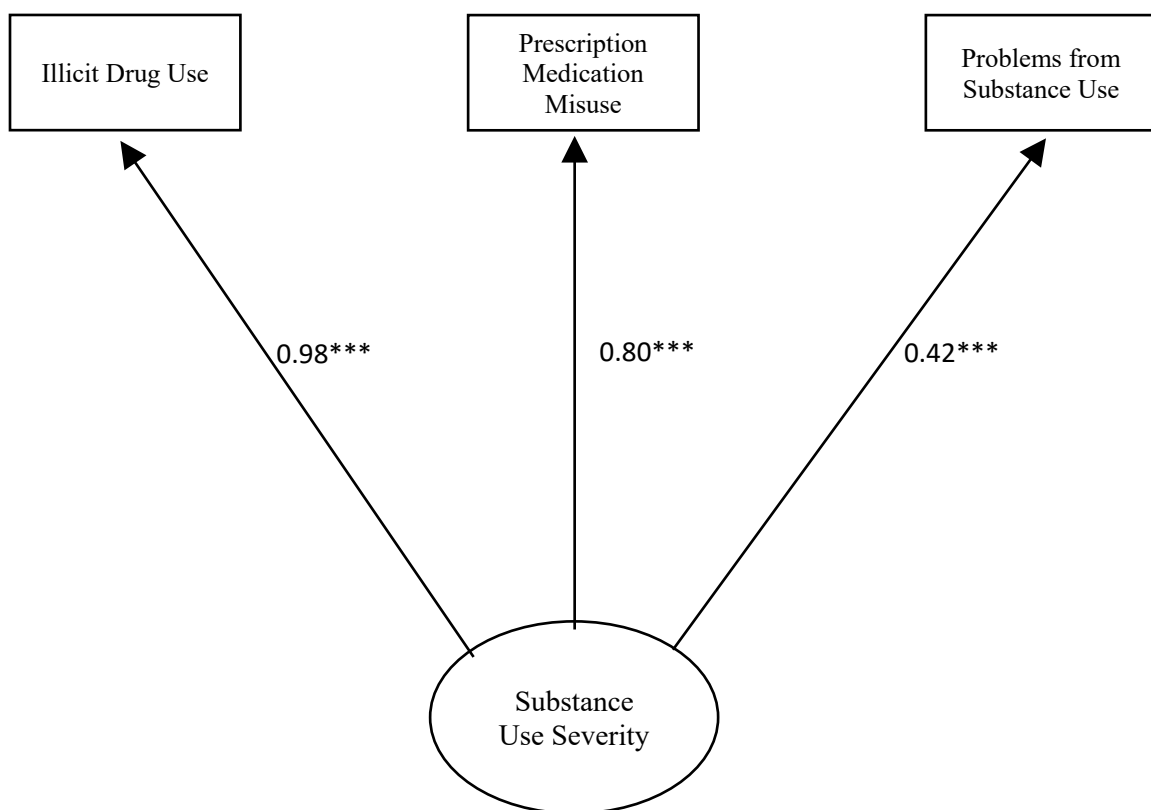
Figure 5

Mental Health Severity Structural Model

APPENDIX L

Latent Construct – Substance Use Severity

Figure 6

Substance Use Severity Structural Model

VITA

Wesley T. Smith

EDUCATION

Doctor of Philosophy in Criminal Justice and Criminology at Sam Houston State University, August 2018 – present. Dissertation title: “Veteran and Military Criminal Justice Involvement: Pathways to Offending.”

Master of Science (May 2018) in Criminology and Criminal Justice at Arizona State University. Thesis title: “Correctional officer punitiveness, self-control and rehabilitative training.”

Master of Science (May 2016) in Criminology and Criminal Justice at Arizona State University.

ACADEMIC AND PROFESSIONAL EMPLOYMENT

Data Analyst V, Texas Department of Criminal Justice, August 2021 – present.

Adjunct Instructor, Department of Business and Public Services Doña Ana Community College, August 2019 – present.

Graduate Research Assistant to Erin Orrick, Department of Criminal Justice and Criminology, Sam Houston State University, August 2018 – August 2021.

Graduate Research Assistant to Kevin Wright, Department of Criminology and Criminal Justice, Arizona State University, August 2016 – May 2018.

PUBLICATIONS

Smith, W.T. (2020) Pregnant Women with a Substance Use Disorder: An Analysis of Publicly Funded Substance Use Treatment Program Outcomes. *The Journal of Substance Abuse Treatment*.

Smith, W.T., Mullings, J.L., Blackburn, A.G., & Fowler, S. (2020) Examining Predictors of Differential Attitudes Toward Reporting Sexual Assault Among Incarcerated Women Using Repeated Cross-Sectional Surveys. *Corrections: Policy, Practice, and Research*.

Smith, W.T., Blackburn, A.G., Harris, J.A., & Mullings, J.L. (2020) Maintaining Connections: An Exploratory Analysis of the Predictors of Prison Visitation with Children and the Post-Release Plans of Incarcerated Mothers. *Women and Criminal Justice*.

Fowler, S., Blackburn, A.G., Smith, W.T., & Mullings, J.L. (2020) Prison Culture as Rape Supportive: Applying Importation and Deprivation Models to the Rape Supportive Beliefs of Female Inmates. Under review at *Journal of Interpersonal Violence*.

Shadwick, J., Benton, F., Smith, W.T., & Dittman, L.W., (2021) A Call for Service: Examining Dispatcher Victimization in *Invisible Victims and the Pursuit of Justice: Analyzing Frequently Victimized Yet Rarely Discussed Populations*.

Benton, F., Smith, W. Dittmann, W., & Shadwick, J. (2021). Don't mess with Texas: Responses towards human trafficking in the lone star state in *Handbook on Research on Present and Future Paradigms in Human Trafficking*.

PUBLICATIONS UNDER DEVELOPMENT

Smith, W.T. & Boisvert D.L. On War & Prison: Veterans, Deployments, Combat, and Incarceration.

Smith, W.T. & Orrick, E.A. Redeploying Again: Veteran Status and the Offending Outcomes of the Serious and Violent Offender Reentry Initiative.

Smith, W.T. Military Veterans with a Substance Use Disorder: An Examination of Substance Use Treatment Program Outcomes.

Smith W.T., Orrick, E.A. Help Wanted: Correctional Staff Retention, Predictive Factors, and U.S. Military Veterans.

Smith, W.T., Mullings, J.L. & Blackburn, A.G. The Invisible Population: The Physical and Mental Healthcare Needs of Incarcerated Women.

Smith, W.T., Fortney, K., Pederson, K.M., Mullings, J.L. & Blackburn, A.G. Challenges to Reentry: A Qualitative Examination of Post-Release Plans and Concerns of Female Inmates.

Pederson, K.M., Smith, W.T., Mullings, J.L. & Blackburn, A.G. Correctional Programming among Incarcerated Women: A Qualitative Examination of Experiences and Perceptions.

Smith W.T., Rockwell, A.R., Padilla, K.E., Military Experience, Culture, Health, and Wellness Among Police Chiefs.

TECHNICAL REPORTS

Smith, W.T., Barbie, A., Weckerly, E. (2021). *Workforce Retention: Causes and Correlates of Correctional Officer Separation between 2015 and 2020*. Report submitted to the Texas Department of Criminal Justice

Simonds, R., Wright, K.A. & Smith, W.T. (2019). *An evaluation of Arizona's Statewide Adult Recidivism Reduction Strategic Plan Implementation Program: Year One Report*. Report submitted to the Bureau of Justice Statistics Second Chance Act Research Team and Arizona Department of Corrections.

Simonds, R., Wright, K.A. & Smith, W.T. (2018). *An evaluation of Arizona's Statewide Adult Recidivism Reduction Strategic Plan Implementation Program: Interim Report*. Report submitted to the Bureau of Justice Statistics Second Chance Act Research Team and Arizona Department of Corrections.

CONFERENCE PRESENTATIONS

Smith, W.T. (2021). Veteran and Military Criminal Justice Involvement: Pathways to Offending. American Society of Criminology, Chicago, IL.

Smith, W.T., Pederson, K.M., Mullings, J.L. & Blackburn, A.G. (2020). Leaving the Iron City: A Qualitative Examination of Post-Release Plans and Concerns of Female Inmates. Academy of Criminal Justice Sciences, San Antonio, TX.

Smith, W.T. & Butler, H.D. (2019). Recent Wars on American Soil: Differential Social Support, Service Era, and Veteran Offending. American Society of Criminology, San Francisco, CA.

Smith, W.T., Mullings, J.L. & Blackburn, A.G. (2019). The Invisible Population: The Physical and Mental Healthcare Needs of Incarcerated Women? Southwestern Academy of Criminal Justice Sciences, Houston, TX.

Smith, W.T., Mullings, J.L., Blackburn, A.G. & Fowler, S. (2019). Would They Advise Reporting? Examining factors Impacting Female Inmate's Willingness to Advise Official Reporting of Sexual Victimization. Academy of Criminal Justice Sciences, Baltimore, MA.

Smith, W.T. (2018). The Persistence of Disparity in Judicial Decision-Making in a Sentencing Guideline Paradigm. American Society of Criminology, Atlanta, GA.

Smith, W.T. & Wright, K.A. (2018) Correctional Officer Punitiveness, Self-Control, and Rehabilitative Training. Academy of Criminal Justice Sciences, New Orleans, LA.

AWARDS AND HONORS

Student Professional Development Award (\$1,300). Association of Doctoral Programs in Criminology and Criminal Justice, 2020.

Summer Research Fellowship Grant (\$6,800), Sam Houston State University, 2020.

Summer Research Fellowship Grant (\$6,000), Sam Houston State University, 2019.

Outstanding Graduate, College of Public Service and Community Solutions, Arizona State University, 2016.

Cum Laude, Arizona State University, Graduation Status, 2016.

Dean's List, Arizona State University, 2014 – 2016.

ACADEMIC AND PROFESSIONAL AFFILIATIONS

Western Society of Criminology.

American Society of Criminology.

Academy of Criminal Justice Sciences.

Student Veterans Association of America.