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**VIOLENCE, SERIOUS OFFENSES, AND VETERAN STATUS IN A PRETRIAL
POPULATION**

A Thesis in

Criminal Justice

by

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ABSTRACT

Popular media depictions suggest that veterans of recent conflicts are more prone to mental health conditions and violence, but empirical research on the issue is mixed at best. In fact, some research suggests that veterans are less likely than non-veterans to commit violent offenses. In an effort to address conflicting perspectives on violence among veterans, this research examines the issue of whether veterans are more likely to be arrested for violent or serious offenses than non-veterans. Data was drawn from 102,225 client records in Allegheny County Pretrial Services from the years 2010 to 2014. Variables examined included veteran status, age, sex, race, employment status at the time of arrest, education level, and prior use of drug and alcohol treatment or mental health services. Though the effect sizes were small, this study found offenders with veteran status were more likely to be arrested for violent offenses than non-veterans. No effect was found for seriousness of offense. Future steps, implications, and policies based on this preliminary study are discussed.

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Introduction

I first became interested in offenders with veteran status when interning with drug and veteran treatment problem solving courts in Pennsylvania. I began to realize there were a number of exceptions in the types of offenders who were able to participate in veteran court; specifically, whether violent or serious veteran offenders should be accepted into veteran treatment courts. Thus, in my study I aimed to focus on veteran offenders and their relationship to violent and serious offenses, and the policy implications that might arise from these findings.

This study is a preliminary examination of whether offenders with veteran status are more likely to be arrested for serious or violent offenses. This question is examined using data from Allegheny County Pretrial Services from 2010 to 2014. The goal of this research is to gather empirical insight as to whether veterans are more likely than non-veterans to be arrested for violent crimes, such as robbery, assault, and homicide, as well as whether veterans are more likely to commit more serious offenses. In doing this, I examine demographics, history of drug and alcohol (D&A) or mental health (MH) services rendered, veteran status, frequencies, bivariate correlations, and regressions on relative variables and predictors of violent and serious offenses.

Following a series of coordinated terrorist attacks targeting symbolic U.S. landmarks on September 11, 2001 then-President George W. Bush and the U.S. Congress authorized two successive war operations: Operation Enduring Freedom (OEF) in Afghanistan in 2001 and Operation Iraqi Freedom (OIF) in Iraq in 2003. Since 2001, 3.3 million service members have been deployed for both OEF and OIF (Dolan, et al., 2012).

Research has long indicated that the effects of military service, and especially combat experience, change the psychology and overall demeanor of returning veterans (Russell, 2011). For some veterans, living under severe duress or in survival mode is temporary during reintegration into civilian life; for others, however, these effects are more enduring (Davis, 2013). The OEF and OIF wars have been the longest ongoing wars in United States history (Manring, Hawk, Calhoun, & Anderson, 2009; Schaffer, 2010). Large numbers of veterans have been returning home (Schaffer, 2010), many of who have sustained high operational status for long periods. Research has attributed to more awareness of the mental health consequences of military service (i.e. deployment and service, not combat). The perception among some that veterans are more violent and among others is an unfair stereotype, one that fails to consider the population, the timing of the violence, and individual predictors pertinent to the individual themselves and not blanketed over all military personnel.

According to a 2015 report done by the Congressional Research Service on the casualty statistics from recent U.S. operations, the most deadly operations have been Operation Iraqi Freedom (OIF) at 4,424 deaths, followed by Operation Enduring Freedom (OEF) at 2,355 (Fischer, 2015). In a 2010 report from the Department of Defense 5,500 military service members were reported to have lost their lives and 38,650 had been physically wounded (Demers A. , 2011). Further, 31% of veterans are reported to have PTSD since 2003 (Demers A. , 2011). Combat experiences have been linked to an increased risk of anxiety, and an additional 10% diagnosed with depression, and anger (Bragin, 2010; Demers A. L., 2013; Jakupcak, et al., 2007; Margolies, Rybarczyk, Vrana, Leszczyszyn, & Lynch, 2013). There have been accounts of returning soldiers suffering

from shell shock, post-traumatic stress disorder (PTSD), traumatic brain injury (TBI), depression, anxiety, and anti-social behavior, throughout the history of American wars (Schaffer, 2010), however, there is some reason to believe that there are more returning veterans experiences issues in the modern era. PTSD and TBI has now been known as signature wounds of the OEF and OIF war efforts (Campbell, et al., 2009). Some researchers attribute the possibility of more severe trauma in more recent wars to the fact that more soldiers are surviving injuries and other egregious experiences due to modern medicine, technology, weapons, and general warfare (Eapen, Jaramillo, Tapia, Johnson, & Cifu, 2013; Manring, Hawk, Calhoun, & Anderson, 2009).

More than half of active duty military personnel have served multiple deployments (Roberts, 2015). More than one-third of service members deployed served more than one tour (Roberts, 2015). By 2012, 37,000 military service members had deployed more than five times, and 400,000 had done three or more tours (Roberts, 2015). More than 1.5 million veterans have returned home, and another million are set to return within the next couple of years (Roberts, 2015). American soldiers who have served OEF and OIF has surpassed 3 million (Daggett, Barkas, Buelow, Habermann, & Murray, 2013).

Media illustrations, including movies like *In the Valley of Elah* (Haggis, 2007), *Brothers* (Sheridan, 2009), and *American Sniper* (Eastwood, 2014) have generally portrayed a depiction of veterans returning home with traumatic issues of war and their ultimate demise to themselves and those around them. These accounts, and the stigmas of veterans perpetuated by rumors and Hollywood depictions of violent veteran

propensities, have led to stratification by the greater public, at times leading to employment discrimination and general labeling (Emmons, 2013; Melnert, 2011).

At the same time, an increased need for VA medical centers and outpatient clinics may also be contributing to behaviors as well as homelessness, unemployment, and contact with the justice system (McQuaid & Bankman, 2014). With high percentages of returning veterans and possibly higher rates and severity of trauma, plus the media images of the unhinged veteran, there is concern in the criminal justice system (along with other service-provision agencies) about understanding and addressing the risks and needs of offenders with veteran status (Cartwright, 2011; Daggett, Barkas, Buelow, Habermann, & Murray, 2013; Davis, 2013; Institute of Medicine Committee, 2010; Margolies, Rybarczyk, Vrana, Leszczyszyn, & Lynch, 2013). As a result of growing concerns Congress has begun exploring veteran mental health programs with the goal of reducing PTSD stigma, suicide and homicide rates, as well as assisting in diagnostic and screening processes (McGrane, 2011). While an individual's military career history (i.e. number of deployments, locations, etc.) by no means suggests negative outcomes, these experiences may mean that offenders with veteran status involved with criminal justice have shared elements of their risk and needs profiles as a function of their military experiences.

This paper begins by describing the experiences of veterans, including numbers and statistics of Operation Enduring Freedom (OEF) and Operation Iraqi Freedom (OIF), the effects of negative reintegration experiences, traumatic brain injury, and posttraumatic stress disorder facing veterans. It then describes the data and methodology of the study comparing veteran and non-veterans arrested for violent offenses according

to Allegheny County's Pretrial Services data between 2010 and 2014. Results from correlation and regression analyses are presented for violent pretrial service detainees. Implications of these results are discussed, as well as limitations of the study and directions for future research. The paper concludes with some potential next steps, future studies, and policy implications that can be derived from this preliminary study and discusses some already-established programs designed to serve the needs of this small distinct population of offenders with veteran status.

Part I: Modern War Effort Experiences

Overall, veterans have been found to have lower arrest rates than non-veterans (Greenberg, Rosenheck, & Desai, 2007). However, there has been an increased concern that veterans, particularly those from recent war efforts, are at higher risk of incarceration (Greenberg & Rosenheck, 2009). In 2007, inmates in local jails or prisons who were veterans were 223,000; and more than half reported having a substance issue, be first time offenders, and little to no prior criminal history (Walls, 2011).

This study examines whether there are relationships among veteran status and violence that suggest a higher likelihood of violent offending among offenders with veteran status and violent or serious offending. I propose the concepts of negative reintegration experiences, PTSD, and TBI as a conceptual mechanism linking veteran status and criminal behavior, though I do not include measures of these concepts directly. In this section I lay out evidence for the proposition that these concepts may be linked with violent behavior.

Reintegration Issues and Potential for Violent Behavior

As early as the Civil War in the United States, some returning veterans have suffered from alienation, social isolation, substance use, and unemployment (Greenberg, Rosenheck, & Desai, 2007). Because of injuries and traumatic experiences, post-deployment can be traumatizing for returning veterans who find coming back to the United States a battle of its own (Hawley & Newman, 2010).

Culture and identity are typically changed when individuals enter the military. Research has found disassociation from civilians upon their return (Lusk, et al., 2015). Likewise, behavior patterns found to be useful in combat settings become useless in civilian communities (Ruff, Ruff, & Wang, 2009). Social competence deficits of returning veterans include being stigmatized, being faced with controversial questions, and experiencing difficulty in focusing on interactions, understanding social boundaries, expressing assertiveness, identifying appropriate topics for discussion, and problem solving at a social level (Hawley & Newman, 2010). Identity crisis, or liminality, among returning soldiers includes feeling as if they cannot be their civilian or military selves (Demers A. L., 2013). Returning veterans without visible wounds may find reintegration even more difficult; although they still suffer from trauma, society and their families, fail to realize and acknowledge their turmoil (Ruff, Ruff, & Wang, 2009). Veterans returning to the United States often are released without housing, gainful employment, family counseling, or help dealing with mental health conditions related to their service (Smith, Klosterbuer, & Levine, 2009). Upon their return, veterans are also met with obstacles in filing complex disability claims, education challenges, employment obstacles, and health

benefits; often add stress and increasing difficulties in daily living, interactions, and community reintegration (Daggett, Barkas, Buelow, Habermann, & Murray, 2013; Roberts, 2015).

A number of studies have described integration difficulties among returning veterans. According to Roberts (2015), 44% of veterans in the post-9/11 era found reintegrating into civilian communities difficult (Roberts, 2015). About 48% of veterans noted they experienced family strains upon their return, and 47% reported frequent anger outbursts (Roberts, 2015). According to Larson and Norman's 2014 study veterans reported difficulty in integration (56%), and also reported higher anger control issues (57%) (Larson & Norman, 2014). These studies would suggest that around half of returning vets experience some difficulty with integration.

Family members play important roles in both physical and mental reintegration processes, (Hayes, et al., 2010); common family dysfunctions in families of returning vets include anger, distrust, alienation, low expressiveness, low family cohesiveness, and high interpersonal conflict that can lead to domestic violence, child abuse, or even veteran homelessness (Hinojosa & Hinojosa, 2011). Family discord within the reintegration process is common (Ruff, Ruff, & Wang, 2009). Individual and family roles when members are gone are shifted and create confusion upon their return (Marek & D'Aniello, 2014). After being discharged, reintegration into civilian roles can result in role stress and role confusion for veterans and family members alike (Marek & D'Aniello, 2014).

Trauma survivors' perceptions of society's reactions toward them play a big role in reintegration experiences, particularly for those veterans coping with PTSD (Schumm,

Koucky, & Bartel, 2014). After service discharge, veterans with physical and psychological injuries tend to experience feelings of burdensomeness, and a thwarted outlook of belonging (Lusk, et al., 2015). Self-perception can stem from having injuries or loss of function that could negatively impact social or family life of being home (Lusk, et al., 2015). A failed sense of belonging can also emerge from inability to adapt to “garrison life”, otherwise known as family routines (Lusk, et al., 2015).

Some returning soldiers often experience chronic pain, emotional instability, emotional distancing, physical impairments, combat guilt, and discomfort with seeking help for fear of stigmatization (Lusk, et al., 2015). Frequent complaints by veterans upon their return included reporting headaches, memory loss, poor attention, irritability nightmares, and impaired sleep (Ruff, Ruff, & Wang, 2009). Negative reactions or skepticism toward trauma survivors is damaging to adjustment (Schumm, Koucky, & Bartel, 2014). Veterans may also experience flashbacks, hyperarousal, avoidance, and emotional numbing (Feisthamel, 2009). Navigating day-to-day life can also be difficult for returning veterans. According to Plach and Sells’ 2013 survey study on returning veterans, they found frequent challenges returning veterans face within their first year back included: driving as a challenge (70%), sleeping disorders (67%), and going back to school as an occupation (93%), (Plach & Sells, 2013).

The association of poor impulse control and outbursts of rage are often related to violence. Combat stress from having to be able to concentrate for long periods of time often leads to some veterans experiencing discomfort with silence; unease with large gatherings; higher absenteeism within respective social networks; decreased work function; and relationship disturbances when returning back home (Lafferty, Alford,

Davis, & O'Connor, 2008). The fear and alienation facing these veterans can impact their overall social efficacy. Veterans are more likely to commit crimes when they feel dissociated from society. They react in survival mode, which may cause them to be temporarily unaware of moral consequences to behavior (Walls, 2011). Research has found exposure to combat leads to more risky behavior when reintegrating back into society (Widom, 2014).

Veterans may also be at elevated risk for suicide. Suicide factors include habituation to pain, little emotional responsiveness, perceived burdensomeness, and failed sense of belonging (Brenner, et al., 2008). According to Lusk et al. feelings of burdensomeness and failure to feel a sense of belonging increases risk of suicide (Lusk, et al., 2015). Suicide is found to be contingent on individuals' abilities, perceived burdensomeness, and failed sense of belongingness; according to Brenner et al. (2008) the presence of all three make suicide probable and a grave danger. Suicidal ideation in returning veterans can stem from after effects of being deployed, the trauma experienced abroad, and upon returning home (Brenner, et al., 2008).

The behaviors used by veterans while deployed to protect against painful emotions often become problematic when coming back to civilian life (Brenner, et al., 2008). Negative reintegration experiences in civilian life, among families, and communities can, with negative coping skills, serve as significant predictors of veterans potentially developing behaviors of criminality.

Posttraumatic Stress Disorder and Violent Behavior

According to the Mayo Clinic, post-traumatic stress disorder (PTSD) is a mental health issue that is caused when an individual experiences or witnesses a particularly distressing event (Mayo Clinic, 2016). While this condition is not unique to veterans, it is a disorder that is of concern for some in this particular population. Impacts of PTSD are wide-ranging, and include decreased quality of life, risk of substance use, suicide, physical health and other mental illness (Pittman, 2014) . PTSD has been associated with physical, occupational, and mental health impairments, as well as impaired interpersonal functioning (Jakupcak, et al., 2007). PTSD also is associated with increased strain to family relations, parenting, and employment (Hayes, et al., 2010).

Overall people who have been traumatized have a tendency to have difficulty trusting, sharing or feeling close to their families and intimate partners (LaMotte, Taft, Reardon, & Miller, 2015). Furthermore, some PTSD symptoms include anger, hostility, and aggression, that may come from intrusive memories of traumatic events, avoidance of things that remind the person of events, mood alterations, and high arousal (Jakupcak, et al., 2007). Depression, substance use, anxiety, antisocial behavior, and poor physical health often correlate with diagnosis (Schnurr, et al., 2015). PTSD problems include sleep, flashbacks, feelings of rage, as well as impacted cognition, physiological arousal and emotional functions (Gross, 2007; Walls, 2011). In 2007, researchers reported significantly higher anger and hostility in veterans with PTSD than those with sub-threshold (beginning) levels of PTSD and those without the diagnosis (Jakupcak, et al., 2007). PTSD often leads individuals to have impairment of social, occupational,

cognitive and health functions thought to lead to a higher propensity of suicidal ideation (Szafranski, Gros, Menefee, Wanner, & Norton, 2014).

According to a 2014 study, 70% of participating service members that noted PTSD interfered with their family life (Marek & D'Aniello, 2014). PTSD symptoms in veterans, including flashbacks, emotional avoidance, and hyper arousal, predicted a lower desire for intimacy among partners of returning veterans (LaMotte, Taft, Reardon, & Miller, 2015). Strains in relationships become more severe when both people in the relationship suffer from PTSD (Klaric, Francikovic, Klaric, Kreic, & Petrov, 2009). The burnout and strains of the relationship are higher than relationships with only one or no victims of PTSD (Klaric, Francikovic, Klaric, Kreic, & Petrov, 2009). Interestingly enough, partners of service members reported to note more psychological symptoms of PTSD in their veteran partners than the service members noted in themselves (Marek & D'Aniello, 2014).

Returning veterans tend to have higher levels of intrusive thoughts (such as fear that something terrible will happen to them or someone they love), hyper arousal avoidance, and psychotic symptoms (Pittman, 2014). Dysphoria was the most frequent diagnosis (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014) and was connected to a reduced ability to adjust post-deployment. Reoccurring-experience symptoms showed more associations with suicidal ideation (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). Those who suffer from PTSD tend also to suffer from at least two or more mental health illnesses (Walls, 2011).

Despite the high number of veterans reporting PTSD and receiving mental health care referrals, those who do attend treatment have been noted to only fulfil a few

treatment visits (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). PTSD among veterans is reported to be at 16% to 32%, but research indicates that many veterans do not seek help. The RAND survey found that less than half who screened positive for PTSD sought help (Crawford, et al., 2015). Post deployment of OEF and OIF veterans reported that 23% to 40% sought treatment within their first year (Crawford, et al., 2015). According to Levin (2011) less than half of veterans showed up for treatment. Forty percent of those who did, later dropped out, and an estimated 20% recovered (Levin, 2011). Veterans' reasons for not seeking treatment included the stigma of getting help; distrust of mental health professionals (25%); desire to resolve problems alone (15%), and the tendency to perceive professional assistance as a last resort (18%) (Levin, 2011). Additionally, according to Crawford et al. (2015), the general public may believe that treatment is solely the veteran's responsibility, which also impedes veterans' motivation to seek help.

Evidence suggests that late onset of PTSD among veterans can be triggered by numerous events (e.g. deaths, aging, loss of mental acuity) (Stencel, 2007). Rise in combat related injuries and knowledge of late onset of PTSD effects may account for the greater number of claims being filed to Veterans Affairs offices, who found an 80% increase in claims between 1999 and 2004 (Stencel, 2007). According to Lafferty (2008), one in four soldiers from OEF and OIF, have filed disability claims, and more than 40,000 of those claims reported have been for PTSD alone (Lafferty, Alford, Davis, & O'Connor, 2008).

Symptoms of PTSD may be predictors of violence in returning veterans (MacManus, et al., 2013). Hyper vigilance, one of the symptoms of PTSD that is marked by avoiding crowds, constantly looking over shoulders, keeping tabs on those nearby,

etc., is a common underlying factor in veterans who have anger-based offenses or fits of rage (Taft, et al., 2007). In their study, McFall et al. (1997) found their more violent inpatients were diagnosed with PTSD and that the severity of an individual's violent behavior was directly related to the severity of the individual's PTSD symptoms (McFall, Fontana, Raskind, & Rosenheck, 1999). Widom (2014) found most of those who committed severe violent offenses (e.g. murder, manslaughter) had more severe PTSD symptoms.

There are some features of recent war efforts that make these problems of PTSD particularly troublesome. First, due to advancements in medicine and weaponry, survival rates in modern warfare, specifically in more modern conflicts, have increased from previous wars (Plach & Sells, 2013). Second, although the United States has maintained an all-volunteer force since the post-Vietnam era, military personnel do not select the geographic regions to which they are deployed, therefore, it may be said that while military service is voluntary, deployment to combat zones and extended stays are mandatory (Lafferty, Alford, Davis, & O'Connor, 2008). Third, modern war settings differ from previous wars. Current and recent combat zones do not have safe zones; soldiers are often under vigilant surveillance, and regular attack (Lafferty, Alford, Davis, & O'Connor, 2008). According to Department of Defense Task Force, 30% of veterans returning from OEF and OIF are diagnosed with PTSD (Bragin, 2010). Using prolonged exposure (PE) and cognitive processing therapy (CPT) instruments, Lutwak (2013) found lifetime prevalence of PTSD to be highest (13.9%), in veterans who served in Iraq or Afghanistan (Lutwak, 2013). Although PTSD is not the only condition impairing returning veterans, it has become a common mental health problem for some returning

military personnel who have been deployed to Iraq and Afghanistan (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). While these factors of PTSD suggest that reintegration issues are of particular concern of recent veterans, they remain a concern for veterans of all war eras.

Traumatic Brain Injury and Violent Behavior

According to the Mayo Clinic, traumatic brain injury (TBI) is caused by large external forces to the head producing severe injury or physical damage to the brain (Mayo Clinic, 2016). Daggett, Barkas, Buelow, Habermann, and Murray (2013) reported that at least 1.4 million people yearly experience TBI, with about 50,000 traumatic brain injuries resulting in fatalities in the U.S. (Daggett, Barkas, Buelow, Habermann, & Murray, 2013). TBI has resulted in expenditures of more than \$60 billion, more than 50,000 fatalities, and more than 1.1 million emergency evaluations or hospitalizations (Daggett, Barkas, Buelow, Habermann, & Murray, 2013). According to Daggett, Barkas, Buelow, Habermann, and Murray (2013), TBI often results from falls, car accident, assault or physical injuries. While veterans are not the only population that suffer from TBI, it is an injury that affects many veterans and whose symptomology is important to note.

Classification of TBI severity depends on a variety of factors, like the duration of symptoms after the injury incident (King & Wray, 2012). TBI is categorized as mild, moderate, or severe based on the length of symptomology at the time of the injury (Dillahunt-Aspilaga, et al., 2014). Symptoms of TBI include attention deficits, lack of

concentration, impaired learning, executive control dysfunctions, reasoning disorders, problems with judgment, and memory loss (Daggett, Barkas, Buelow, Habermann, & Murray, 2013; Campbell, et al., 2009; Eapen, Jaramillo, Tapia, Johnson, & Cifu, 2013). Some additional effects include depression, suicidal inclination, anxiety, impulsivity, and aggression (King & Wray, 2012). Despite lower severity in TBI, also known as mild TBI (mTBI), has been found also to lead to post deployment impairments in cognitive, physical, emotional, and behavioral performances (Daggett, Barkas, Buelow, Habermann, & Murray, 2013).

Regulation of emotions and behavior can be difficult for individuals with TBI, and without regulating social interactions, individuals run the risk of becoming isolated and having relationships (i.e. family, marital, friendships) suffer (Hawley & Newman, 2010). In their study, Daggett, Barkas, Buelow, Habermann, and Murray (2013) found depression as a main outcome of TBI as members reintegrated into society. Alcohol use has been found to be prevalent within TBI population and can be attributed to the numerous negative effects of trauma (Herrold, et al., 2011).

While TBI does not only affect the veteran population, its effects and symptoms among veterans are varying and notable in recent wars. According to Elder (2015), 80% of TBIs suffered by active duty personnel occur in non-deployed settings. Furthermore, there are TBI types unique to the military, such as, blast-related events (Elder, 2015). Blast-related events in modern warfare have become more prevalent with weapons like improvised explosive devices (IED) and propelled grenades, common weapons used in modern war zones (Elder, 2015; Foehl, 2008). Over 320,000 United States service members sustained TBI wounds between 2000 and 2014 (Elder, 2015). The Brain Injury

Veterans Center reported more than 219,000 cases in 2013, including mild TBI (mTBI) cases (Eapen, Jaramillo, Tapia, Johnson, & Cifu, 2013).

Polytrauma

Polytrauma in this study is defined by the presence of multiple mental health conditions, like PTSD and TBI. Violence among veteran offenders is often assumed to be a result of combat deployment, but there are other factors, like substance use (i.e. alcoholism), negative reintegration experiences, symptoms from PTSD or TBI, military rank, and other service-related experiences (i.e. multiple deployment, combat zone exposure, etc.) (MacManus, et al., 2013).

There are unique deficits in treatment for veterans suffering from both PTSD and TBI including partial overlapping of these two conditions (Campbell, et al., 2009; Morey, et al., 2013). For example, although TBI alone does not account for worsening neuropsychological functions, PTSD alone does have significant negative effects (Campbell, et al., 2009). Veterans who suffer from both TBI and PTSD differ in depression severity (Shu, Onton, O'Connell, Simmons, & Matthews, 2014), which may lead to substance abuse, incidental self-harm, or harming others. Veterans who develop PTSD after TBI usually reported greater PTSD severity (Shu, et al., 2014). TBI and PTSD disorders are associated with impaired visual, hearing, and sleeping patterns, often as a result of explosion exposure (Ruff, Ruff, & Wang, 2009). Due to the many symptoms of TBI and PTSD, returning veterans who suffer from these mental illnesses tend to self-medicate, leading to increased numbers of veterans with substance use problems,

psychological issues, and suicide ideation; which can result in violence or other forms of criminal behavior (Walls, 2011).

Children and partners of veterans often report their loved one is different than before; combat trauma and possible PTSD or TBI diagnoses can make intimacy and communication more difficult (Marek & D'Aniello, 2014).

Other Predictors of Violence

The demographics of the veteran population may mirror common control variables for offending. For example, a majority of veterans are male, and gender is a predictor of many kinds of offending (The Federal Bureau of Investigation, 2014). On the other hand, veterans are almost all graduates of high school, and education levels typically suggest lower levels of criminality (Bernard, Snipes, & Gerould, 2010). The variables described below serve as control variables, and are included to help ensure that any observed connection between veteran status and criminal behavior is not a function of one of these confounding characteristics.

Age. Based on prior research we know age predicts offending in the general population (MacManus, et al., 2013; Stanback & King-Kallimanis, 2011). However, because the veteran population is slightly older than the average population due to recruitment and training timelines, age may confound the observed link between veteran status and criminal behavior. In MacManus et al. (2013) study, researchers found that violent offenses are the most common among veterans who were 30 years old or younger.

In fact they found most violent offenses to be perpetrated by lower ranking veterans, which may be related to age (MacManus, et al., 2013).

Sex. According to the UCR arrest data of 2014, 73% of arrestees were male (The Federal Bureau of Investigation, 2014). In regard to violent crime, the UCR indicated 80% of violent crime was committed by male offenders (The Federal Bureau of Investigation, 2014). At the same time, the veteran population of the US is 92% male (United States Census Bureau, 2014), suggesting that sex may be a confounding variable.

Race. Studies have previously shown that veteran race or ethnicity could have a difference in behavior, culture, and predictability in seeking treatment for PTSD (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014; Pittman, 2014). According to the 2013 UCR 45% of reported arrestees nationwide were non-white (The Federal Bureau of Investigation, 2013). Taking into account the prison and arrest rates by race, incorporating race in this study can solidify or find differences within these established findings. Moreover, studies focusing on trauma (i.e. PTSD and TBI), as well as, negative reintegration experiences have noted differences among veterans according to their ethnicities (Greenberg, Rosenheck, & Desai, 2007; Gross, 2007; Pittman, 2014).

Employment Status. Having gainful employment is the goal of many returning service members (Dillahunt-Aspilaga, et al., 2014). In fact, failure to return to work can lead to poor psychological and social experiences, decreases in integration, and strain in financial independence (Dillahunt-Aspilaga, et al., 2014). PTSD assessments for veterans who suffer from the disorder, predict functional difficulties with work, finances, and activity limitations from mental health issues (Larson & Norman, 2014). TBI diagnoses negatively impacts an individual's ability to be independent, to integrate, and lead a

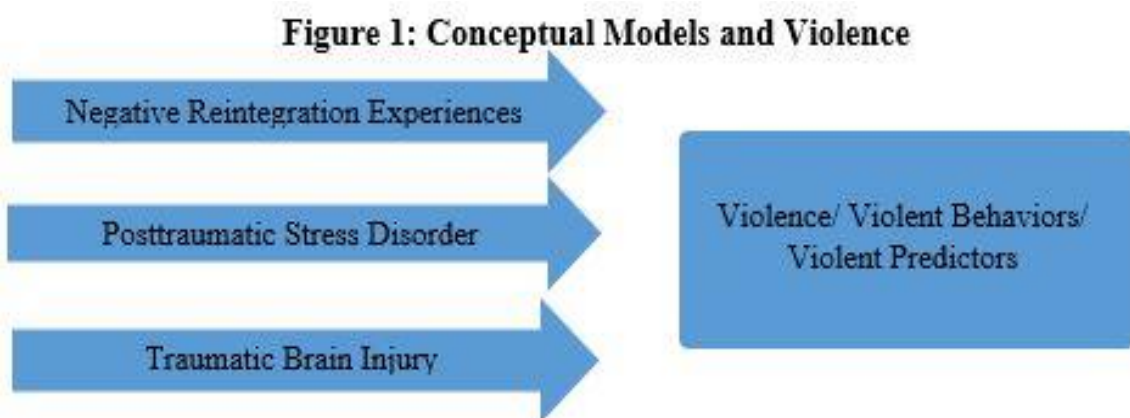
productive life (Dillahunt-Aspilaga, et al., 2014). Veterans with TBI or PTSD experience high unemployment rates, due to their issues with ability to cope with symptomology and the work environment (Dillahunt-Aspilaga, et al., 2014). Therefore, because research has shown that reintegration issues in veterans and non-veterans depend on strains in an individual's life, employment status at the time of arrest was an important variable to explore.

Education Level. Most veterans, particularly those from recent operations, hold a high school degree (Roberts, 2015). In fact recent veterans are taking advantage of educational benefits (i.e. GI Bill or Yellow Ribbon Program), and are going to school, to widen their horizons and improve their opportunities in the work force (Roberts, 2015). Veteran educational programs like the GI Bills and Yellow Ribbon Program, means many more veterans are returning to classrooms, particularly in law and criminal justice fields of study (Roberts, 2015). As lower education levels tend to predict offending, this was included as a control variable (Bernard, Snipes, & Gerould, 2010).

Prior Treatment for Drug and Alcohol or Mental Health. According to McQuaid and Bankman (2014), veterans with substance use and mental health issues, made up most of the population of incarcerated veterans. In Walls (2011) study veteran inmates reported more alcohol abuse and mental health issues than non-veterans. Wheeler and Bragin (2007) found 38% of soldiers, 31% of Marines, 49% of National Guard members noted negative psychological symptoms within weeks of discharge. Impacts of PTSD include decreased quality of life, risk of substance use, and mental illness (Pittman, 2014). In fact, although there may be a differences in symptomology severity between veterans who suffer from TBI and/or PTSD, both mental illnesses are predictors for

substance abuse, incidentally self-harm or harming others (Shu, Onton, O'Connell, Simmons, & Matthews, 2014). Researchers have found that the symptoms of TBI and PTSD have often led to self-medication through substances, among veterans with psychological issues and suicide ideation (Walls, 2011). McQuaid and Bankman (2014), also found in their study that veterans with substance use and mental health issues, made up most of incarcerated veterans (McQuaid & Bankman, 2014).

In summary, this paper will examine offenders with veteran status and their likelihood of committing violent or serious offenses. As described in the literature review, the correlation with symptoms and underlying concepts behind negative reintegration behaviors, PTSD, and TBI, may serve as causal mechanisms to violent or serious crimes among offenders with veteran status. This may also help better address true needs of this sub-population among veterans.



Part II: Data and Methodology

In order to address needs of offenders with veteran status, in light of recent attention to returning veterans and their potential problems with mental and social health, this study focuses on whether violent and serious offenses are more prevalent in veteran offender populations than non-veteran offenders. According to what past research suggests, I expect that this relationship will hold true beyond control variables and demographics that predict violence; which, if supported, could mean further implications to better support and serve this veteran sub-population.

Hypothesis 1: Offenders with veteran status are more likely to have committed a violent offense than non-veteran offenders.

Hypothesis 2: Offenders with veteran status are more likely to have been arrested for more serious offenses than non-veterans.

To evaluate these hypotheses I use Allegheny County Pretrial Services data from 2010 to 2014. Access to these data came as a result of a partnership between Allegheny County and a group of researchers at Penn State who were already examining Veterans Treatment Courts in Pennsylvania. The sample population included all those individuals in pretrial services and data on their arrests in Allegheny County, Pennsylvania. Detainees in pretrial and their arrest data allowed for a well-rounded analysis of the data.

Allegheny County is comprised mostly of the metropolitan city of Pittsburgh, with a few smaller outlying regions. Pittsburgh is the second biggest metropolitan city in Pennsylvania with 305,412 residents as of 2014; racially, it is 64.8% white (alone), 26.1% African American, 4.4 % Asian, and 2.3% Hispanic or Latino, according the

United States Census (The United States Census Bureau, 2015). In general, the demographics of Allegheny County included in 2014 to be 1,231,255 residents, a small drop of about 7,907 residents since 2010 (The United States Census Bureau, 2015). In 2014 women made up 51.8% of the population, 79.6% reported being white (alone), 13.4% African Americans, 3.4% Asian (alone), and 1.9% reported being Hispanic or Latino (The United States Census Bureau, 2015). Also, 92.2% of residents over the age of 25 reported graduating from high school and residents who obtained a Bachelor's degree over the age of 25 comprised 35.9% of the population (The United States Census Bureau, 2015). There were 93,327 veterans residing in Allegheny County between 2010 and 2014, about 10% of the 943,417 veterans reported to be living within the state of Pennsylvania (The United States Census Bureau, 2015).

Pretrial initiatives in the United States' criminal justice system became more institutionalized and more prevalent in 1976 when pretrial officers were appointed (Makowiecki & Wolk, 2007). Pretrial incentives came as a byproduct of the Speedy Trial Act of 1974 and bail projects (Makowiecki & Wolk, 2007). The First Bail Reform Act was intended to draw attention to the intent of those arrested for crimes, specifically peoples' risk of flight and future non-appearance (Makowiecki & Wolk, 2007). Previous bail projects such as the Bail Reform Act of 1966 attempted to establish bail plans of who merited release from pretrial holding without having to provide a large money post or property bonds (Makowiecki & Wolk, 2007). As researchers developed more sophisticated mechanisms for assessing risk related to bail, they expanded their analysis to identify detainees' risks with respect to other factors, such as, family and community ties, employment, mental condition, financial means, prior convictions, and previous

cases and ensure predictability in compliance of those in holding (Makowiecki & Wolk, 2007). In 1982, Ronald Reagan signed pretrial services as a uniform practice within the justice system (Makowiecki & Wolk, 2007). It was expected that pretrial services would operate as neutral agencies, to provide relevant information and supervision services (Makowiecki & Wolk, 2007). The foundation of pretrial was meant to provide community safety, assign preventative detention, potential release conditions, temporary detention on conditional release cases, standard for post-conviction release, and procedures for revocations (Makowiecki & Wolk, 2007).

Overall, the goals of pretrial services were to deemphasize cash bonds and promote effective ways to address the risks and needs of arrestees (Makowiecki & Wolk, 2007). Changes in general social and criminal populations have led pretrial service members to innovate and assess detainees in regard to a secure need for treatment and training services for detainees in pretrial (Makowiecki & Wolk, 2007). At first, pretrial services provide the court with information relevant to pretrial release (e.g. bail bonding), competency, treatment, as well as risk and needs assessment (e.g. employment, housing situation, and mental health status). More recently, pretrial service offices maintain and examine data on individuals' demographics (race, gender, marital status, number of dependents, and age), or even an individual's military career (e.g. branch of service, combat veteran status, and Veteran's Administration registration) and provide assessment and intervention for pretrial offenders.

In Allegheny County, Pennsylvania, pretrial services tend to be reserved for the more serious offenses than the typical general traffic violations, those which warrant detention for a short period of time (e.g. "sleeping off" a drunk driving offense), and

incidents that could be sorted out by the magistrates, for low level offenses. Pretrial services include offenders who have been arrested for moderately serious offenses or higher, as these offenders are typically sent to the more modern facilities in downtown Pittsburgh.

Data on pretrial services are combined with the samples' arrest history information from Allegheny County Pretrial Services data between 2010 and 2014. The data observed was created by merging two datasets from Allegheny County; the datasets included one where all arrests were compiled, and the second was a dataset of those in pretrial services, which included offenders' demographics. These datasets were merged using offenders' state identification number and their system identification numbers on an Excel spreadsheet. The merge of both datasets was verified by using Excel's "v-lookup" function. As a result, it provided sufficient information to provide possible patterns and correlations of veterans compared to non-veterans in contact with the criminal justice system.

This research focuses on finding the differences between veterans and non-veterans in contact with the justice system, in particular, those with violent offenses according to the Allegheny County Pretrial Services data from 2010 to 2014. The data include dependent variables of violent and seriousness of offenses and patterns. Control variables such as demographic, threat levels, employment, education, and services rendered to detainees will be used to identify differences in offending behavior and veteran status. The goal was to concentrate on the patterns of violent and serious offending, patterns in offender demographics, threatening behaviors, and history of services rendered for substance abuse and mental health issues to assess both hypotheses.

Variable Descriptions

In this study, variables of interest include veteran status, violent offending, seriousness of offense, age at the time of arrest, sex, race, employment status at time of arrest, level of education, and prior involvement in substance abuse or mental health treatment services. The following section describes those variables in greater detail as they appear in the data. In cases where the variables were calculated, generated, or otherwise manipulated, this section explains those manipulations.

Veteran status of an offender is a dichotomous variable that was made from the original variable which indicates whether arrestees had ever been in the military. Again, the veteran status variable would include veterans from all war efforts and not only recent operations. Note that this is not a combat indicator; anyone with prior military service is included.

Given the importance of age and violence, this study incorporates age at the time of arrest. This variable was generated by calculating the date of arrest and subtracting it by the arrestees' date of birth. Age at the time of the arrest was kept as an interval variable.

Because of the longstanding attribution of violent and serious offenders being male, this study recoded sex as a nominal dichotomous variable for male offenders. In the Allegheny County Pretrial Services dataset, race was a self-identified nominal variable which included white, Black, American Natives, and Asian. This race variable was recoded into a dichotomous variable of white and non-white offenders. Non-white

offenders was a coded variable that included those who identified being Black, American Natives, or Asian.

Employment status at the time of the offender's arrest variable was coded as a dichotomous variable of either employed or unemployed offenders. Employed was coded to include those offenders who were either employed full or part time at the time of their arrest. The education variable was also a dichotomous self-report measure of whether the offender had completed high school. Lastly, this study incorporated whether an offender had ever received substance abuse or mental health services at any time before their arrest. Arrestees who reported having ever attended drug and alcohol services or mental health services were combined and recoded into a dichotomous variable of those who had at some time received treatment in either type of service.

Dependent variables for this study included violent charges and serious offenses. Allegheny County pretrial services built the dataset used in this study. One step that pretrial services takes is to indicate when offenders are arrested for a violent offense. In this study, I used Allegheny County's violent charge variable, which indicated one or more violent offenses, to represent violent offenses in my study. There were two reasons for this. First, Pretrial Services' investigation into each offender is thorough enough to use in court, and thus seemed a very valid measure. Second, this violence "flag" had more complete data than I was able to get by merging the arrest and demographics datasets.

In order to analyze the second hypothesis in veteran offenses, I recoded a variable for offenders who had serious offenses. Because the dataset included charges over a four year period, and because Allegheny County maintained their offense records by offense

rather than by individuals, I first sorted the data by offender, to include all of the charges to each individual over the four year period, then sorted all charges assigned to each individual and kept only the most serious offense. I dropped all individuals with less than felony-level offenses, then recoded the grade of the offense variable by homicide, second degree homicide, first degree felony¹, second degree felony, third degree felony, and all other felonies that were not graded by degree. I did not include misdemeanors because Allegheny County pretrial services does not typically arrest for misdemeanor or summary charges per county regulations. Because the serious offense variable is an ordinal variable, a linear regression was applied to find relationships between serious offenses and independent variables. While the seriousness grade is not an interval variable, it does provide a scale of increasing seriousness by offense type. By implementing a linear regression we can understand the types of predicting variables of serious crime increase or decrease. By coding the appropriate variables my analysis is geared to find whether patterns exist in veteran offenders, that may make them more likely to commit violence or more serious offenses compared to non-veterans detained according to Allegheny County Pretrial Services data between 2010 and 2014.

¹ According to the Pennsylvania Code felonies (at any grade) can be violent or nonviolent (Pennsylvania Code, 2015). For example, some felonies include: acquisition of controlled substances, corrupt organizations, stalking, arson (not resulting in death), criminal mischief (e.g. graffiti, paintballs), agricultural vandalism, or forgery of deeds or legal documents, these offenses constitute as felonies with changes in degrees dependent on monetary loss or rise in danger (Pennsylvania Code, 2015). Thus, no uniform understanding of the types of felony offenses assigned in this study can be determined with the data provided (Pennsylvania Code, 2015). Because of the large variety in types of offenses charged as felonies, my use of felonies in this study is simply to put a severity index in perspective for my second hypothesis. In the conclusions' section of this study, I propose some ways to remedy this situation in future studies.

Part III: Findings & Analysis

This research examines whether there is a relationship between veteran status and violent and serious offending in these data. Data is drawn from Allegheny County Pretrial Services data between 2010 and 2014. First, frequencies of the variables of interest are presented. Next, bivariate correlations are presented to illustrate associations between the variables. Finally, violent offenses and serious offenses are regressed on to independent variables to determine association while controlling for the influence of other variables in the model.

Frequencies

Frequencies are used to establish a general understanding of the prevalence of the measured characteristics in the data. The following section provides frequencies for the variables in this analysis. All of the variables were recoded into dichotomous variables except for age.

The frequency of violent charges is presented in Table 1. According to the data from 2010 to 2014, only 1.33% of charges were violent. The low percentage of violent offenses should be noted, as it will affect the later interpretation of correlation and regression analysis.

The serious offense variable was generated as an ordinal variable including only homicides and felonies. According to Allegheny County Pretrial Services data between 2010 and 2014, felonies with added grades were the most prevalent types of serious

crimes. Moreover, according to Table 1, felony I seemed to be the most recorded type of serious offense committed by arrestees.

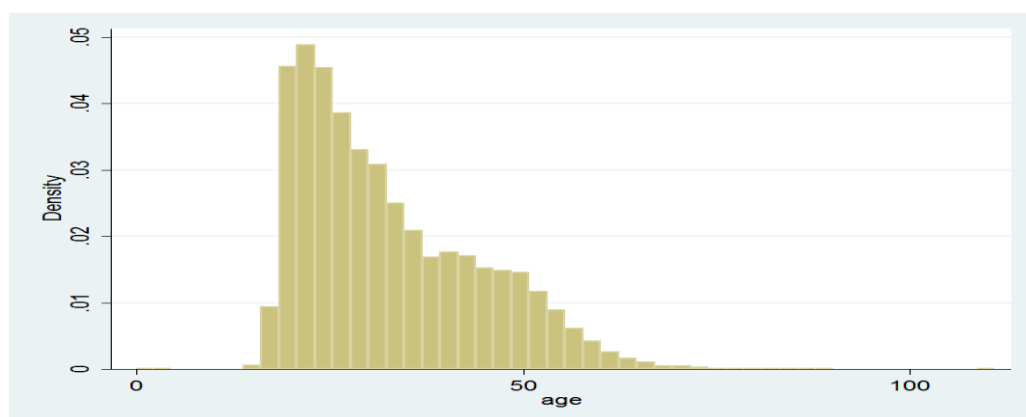
Table 1: Frequencies of Violence and Seriousness of offense

	Frequency	% Valid	Cumulative
Violent offense			
Non-Violent	63,167	97.89%	97.89
Violent	1,359	2.11%	100.00
Total	64,526	100.00%	
Missing	37,699	(36.88%)	
Offense seriousness			
Felony	5,555	10.54%	10.45
Felony III	14,185	26.91%	37.45
Felony II	11,390	21.61%	59.05
Felony I	20,620	39.11%	98.17
Homicide II	27	0.05%	98.22
Homicide	940	1.78%	100.00
Missing	49,508	(48.43%)	

In the Allegheny County Pretrial Services data from 2010 to 2014, only 5% of pretrial clients reported veteran status (Table 3). According to the 2014 United States Census in Allegheny County, veterans made up 7.6% of the 1.2 million Allegheny County inhabitants (Table 3) (The United States Census Bureau, 2015). The veteran population in the state of Pennsylvania in 2014 was reported to be 943,417 (The United States Census Bureau, 2015).

The variable of offenders' age at the time of arrest was the only interval variable in this study. The histogram chart below (Figure 2) demonstrates the ages of pretrial arrestees at the time of their arrest. This chart mirrors past research, in that younger offenders tend to be over represented in offender populations. Offenders found in pretrial services between 2010 and 2014 appeared to be mostly young adults, likely in their twenties. In fact, by age 59 cases drop nearly fourfold.

Figure 2: Age of Offenders at Time of Arrest



In these data 76% of arrestees were male (Table 2). The representation of male arrestees found by Allegheny County Pretrial Services from 2010 to 2014 to be about the

same percentage of male arrestees found in the FBI national arrest figures (74.5%) (The Federal Bureau of Investigation , 2010).

Race of arrestees was coded into white or non-white. Those included into the non-white variable included any arrestee who indicated: Black, American Native, or Asian as their race, as the number of American Native and Asian both less than .5% and were not of specific interest to this analysis. In order to make an accurate comparison between pretrial services and the Allegheny County census, the figures included the same options provided in the pretrial services data. Interestingly enough, when analyzing the 2014 United States Census data of Allegheny County, the population was reported to have been made up of 79.6% white (non-Hispanic) and 16.6% non-white residents (Table 3) (The United States Census Bureau, 2015). Although the pretrial services population across four years have an even distribution between white and non-white arrestees, taking account the census information of Allegheny County suggests a disproportionately non-white population in pretrial services. Table 2 shows the non-white pretrial services population to be 50.5%, while the Allegheny County 2014 census recorded the non-white population to be 16.6% (The United States Census Bureau, 2015).

To assess employment status, this study included both full and part-time employment at the time of arrest. Only 28% of pretrial arrestees held full or part time jobs at the time of their arrest. According to the Census, the employed population of Allegheny County was about 57% in 2013 (The United States Census Bureau, 2015), suggesting that the pretrial population is disproportionately unemployed (Table 3).

Table 3 shows that in the Allegheny County Pretrial Services data, 80% of offenders held a high school education, 13% less than the general county at about 93%

(The United States Census Bureau, 2015). Furthermore, previous research has shown that inmates, or people facing the justice system, tend to have a history of drug and alcohol abuse or mental health issues (Greenberg, Rosenheck, & Desai, 2007; McQuaid & Bankman, 2014). When looking at the frequencies for this pretrial population in a span of four years, it seems to hold true; a little more than half of arrestees reported having been in or ever received drug and alcohol or mental health services.

Table 2: Frequencies of Predictor Variables

	Frequency	Valid	Cumulative
Veteran Status			
Veteran	5,406	5.43%	100.00
Non-veteran	94,181	94.57%	94.57
Missing	2,638	(2.58%)	
Sex			
Male	77,978	76.46%	100.00
Female	24,013	23.54%	23.54
Missing	234	(0.23%)	
Race			
White	49,796	49.08%	49.08
Nonwhite	51,663	50.92%	100.00
Missing	766	(0.75%)	
Employment status			
FT/PT	28,698	28.32%	100.00
Unemployed	72,623	71.68%	71.68
Missing	904	(0.88%)	
High School Degree			
Yes	82,476	82.15%	100.00
No	17,921	17.85%	17.85
Missing	1,828	(1.79%)	
Previous DA/MH services			
Yes	56,570	63.75%	100.00
No	32,171	31.47%	36.25
Missing	13,848	(13.19%)	

Table 3: Allegheny County Descriptors

Variable	Pretrial Services Data (2010-2014)	Allegheny County (2014)
Veteran Status	5%	7.6%
Non-white	50.5%	16.6%
Employment	28%	57%
Education (High School)	80%	93%

Sample Size and Measures of Association

The remainder of this statistical analysis includes correlations and regressions which are measures of association. Typically with these measures one includes statistical significance, however, with a sample size of 102,225 offenders, significance levels are not useful, and this changes the methods of interpretation. Large sample sizes reduce the need for significance value, because all values will be inflated and found to be significant. Statistical significance is used to see if results were found by random chance. It also provides a way to balance findings in sample size. Statistical significance is meant in most cases for smaller sample sizes. Having too large of a sample size, or too much information, statistical significance is heightened (Select Statistical Services, 2016). Though having more information may seem to be a good thing, it actually creates issues like misinterpreting significance, make data look like something it is not, and ultimately make control variables significant across the board (Runkel, 2012). Interpretations of this means making the wrong conclusions if solely basing interpretations on statistical significance, or a “false positive” (Kalla, 2009); these errors due to large sample sizes and misinterpreting statically significance in large samples are referred to Type-I and Type-II errors (Kalla, 2009). In other words, large sample sizes make statistical standard errors to be miniscule, making even small amounts (distances) to be interpreted as statistically significant (Lin, Lucas, & Shmueli, 2013). Although there is no golden number that dictates too large of a sample size, a statistical power analysis could be adopted (Kalla, 2009). Because I am not reporting statistical significance, it would have been of no value to include collinearity diagnostics for the regression analysis.

Bivariate Correlations

Table 4 reports the results of correlation analyses of the variables in this study. I ran correlations on all my variables in an effort to find patterns that may appear between independent variables, particularly veteran offender status and violent charges or most serious charges. In regard to my hypotheses, there was no correlation between veteran status and violent or serious offenses ($r = .008$). The same is true of the relationship between veteran status and serious crimes, no correlation was found between these variables ($r = -.008$). Thus I find no support for either one of my hypotheses in bivariate correlation analysis.

The strongest correlation found in Table 4 was a weak positive correlation between offenders with veteran status and the age of offender ($r = 0.236$), meaning that offenders with veteran status, are more likely to be older than non-veteran offenders. This makes sense as there was a weak negative correlation between arrestees with full or part time employment and those who reported having ever received drug and alcohol or mental health services ($r = -0.154$), meaning that those who had been in either services were less likely to have a job. This correlation between low employment status and having ever been in drug and alcohol or mental health service could be explained by the nature of addictions or mental illness and the difficulty these factors pose in holding employment (Table 4). This is in line with previous research, which suggests that pretrial offenders are a population of individuals at risk of incarceration, who tend to be unemployed and mentally ill (Greenberg, Rosenheck, & Desai, 2007).

Another interesting finding is the weak negative correlation between the age of the offender at the time of the arrest and having been arrested for a violent or serious crime (Table 4). This finding holds true to previous research that note young men to be more likely to be arrested for violent offenses (Greenberg & Rosenheck, 2009; MacManus, et al., 2013; Widom, 2014).

Table 5 provides the results of the correlation analyses. According to the correlation analysis found, there only existed a weak positive correlation ($r = 0.129$) between the dependent variables and independent variables in this study.

Table 4: Correlations on Variables of Interest of Arrestees

	Veteran Status	Male	Non-white	Age	Full/Part Time Employed	Ever In DA/ MH Services	High School Degree
Veteran Status	1.0000 99,587						
Male	0.1014 99,432	1.0000 102,225					
Non-white	-0.0277 98,924	0.0602 102,225	1.0000 102,225				
Age	0.2357 63,158	-0.0070 64,434	-0.0622 64,140	1.0000 64,526			
Full/Part-Time Employed	0.0323 99,587	0.0233 102,225	-0.0866 102,225	-0.0110 64,169	1.0000 102,225		
Ever In DA or MH Services	-0.0542 86,875	-0.0748 88,712	-0.0432 88,347	0.0357 58,944	-0.1535 88,055	1.000 88,741	
High School Degree	0.0978 99,017	-0.0150 102,225	-0.0914 99,748	0.1604 63,703	0.1245 102,225	-0.0501 87,424	1.0000 102,225
Violent	0.0083 63,158	0.0248 64,434	0.0250 64,140	-0.0320 64,526	0.0219 64,169	-0.0171 58,944	-0.0257 63,703
Serious Crimes	-0.0081 51,854	0.0960 52,674	0.0547 52,535	-0.1160 34,747	-0.0394 52,342	0.0667 50,145	-0.0633 52,060

Table 5: Correlations of Serious and Violent Offenses

	Violent Offenses	Serious Offenses
Violent Offenses	1.0000 <i>64,526</i>	
Serious Offenses	0.1293 <i>34,747</i>	1.0000 <i>52,717</i>

Regressions

In this study, regression analysis is used to focus on the variables of interest while controlling for the dependent variables of violent and serious offense. Because statistical significance cannot be used to interpret the regressions data, I only interpret the odds ratio. The odds ratio determines the likelihood of the relationship between the variables of interest and dependent variable (i.e. violent crimes). Table 6 reports the results of a logistic regression of violent offense on the independent variables in the model. Results of the logistic regression suggest that offenders with veteran status seemed to be more likely to be arrested for violent crime (OR = 1.648). This relationship between offenders with veteran status and violent charges was not found in correlations, thus demonstrating the importance of running regressions to filter out the simultaneous impact of other variables.

Results of regression analysis also suggest that offenders who were male were more likely to commit violent offenses. One interesting finding, was that non-white offenders were more likely to have violent charges (OR = 1.316) than whites. Arrestees who reported to be employed at either full or part-time, were more likely to have been charged with violent crime.

Table 6: Logistic Regression of Violent Offense on Predictor Variables

Violent	Odds Ratio	Std. Err.	z	P> z	[95% Conf. Interval]	
Veteran Status	1.648	.1959	4.21	0.000	1.306	2.081
Age	.979	.0028	-7.16	0.000	.973	.985
Male	1.447	.1145	4.67	0.000	1.239	1.690
Non-white	1.316	.0783	4.61	0.000	1.171	1.479
Full/Part-Time	1.559	.0986	7.02	0.000	1.378	1.765
D&A or MH Services	.873	.0517	-2.29	0.022	.777	.980
HS Degree	.707	.0483	-5.08	0.000	.618	.808
Constant	.033	.0044	-25.52	0.000	.025	.043

**Note: Log likelihood= -5931.82; Number of obs = 57362; LR chi2 (7) = 212.53; Prob > chi2 = 0.0000; Pseudo R2 = 0.0176*

Table 7 reports the results of the linear regression of seriousness on the predictor variables. No relationship was found between the dependent variable of serious offenses and the variables of interest. Offenders with veteran status were found to be the least substantive predictor of seriousness. Serious offenses were only slightly relevant in age, male, and D&A or MH services rendered. This means that the younger the offender to more likely they were to have been arrested for a serious charge. On the other hand, if the offenders were male or had ever received D&A or MH services the more likely they were to have committed serious offenses.

The most substantive was the relationship between serious offenses and the age of the offender ($\beta = -.1152$). Another relevant relationship is that between offenders being male, and being more likely to have been charged with serious offenses ($\beta = .0845$). Lastly, the relationship between those who had ever attended D&A or MH services being more likely to have been arrested for serious offenses was slightly relevant in this regression ($\beta = .0825$).

Table 7: Linear Regression of Offense Seriousness on Predictor Variables

Serious Offense	Coefficient	Beta	Std. Err.	t	P> t	[95% Conf. Interval]	
Veteran Status	.1132	.0205	.0309	3.66	0.000	.0527	.1739
Age	-.0119	-.1152	.0006	-20.29	0.000	-.0131	-.0108
Male	.2530	.0845	.0164	15.46	0.000	.2209	.2851
Non-white	.0561	.0243	.0123	4.43	0.000	.0313	.0801
Full/Part Time	-.0836	-.0288	.0159	-5.25	0.000	-.1147	-.0524
D&A or MH	.2041	.0825	.0136	15.01	0.000	.1775	.2301
HS Degree	-.0972	-.0352	.0154	-6.32	0.000	-.1273	-.0671
Constant	3.0390		.0288	105.42	0.000	2.982	3.095

**Number of obs = 33258; F(7, 33250) = 152.64; Prob > F = 0.0000; R-Squared= 0.0311; Adj R-squared = 0.0309; Root MSE= 1.1136*

Part IV: Discussion

In accordance with these analyses, it seems there is no support for my second hypothesis regarding offenders with veteran status being more likely to be arrested for more serious offenses, than non-veterans. In fact, the linear regression revealed that of the modeled variables, veteran status was the least strong predictor of offense seriousness. On the other hand, however, these analyses did support my first hypothesis. Offenders with veteran status were found to be more likely than non-veterans to be arrested for violent offenses. It is important to keep in mind offenders with veteran status made up only 5% of the Allegheny County Pretrial Services data from 2010 to 2014. Violent offenses within the dataset observed only accounted for 2% of all offenses recorded by Allegheny County between 2010 and 2014. This means arrests for violent crimes are not all that common in this county, as demonstrated in the sample used. Therefore, although veteran offenders did demonstrate to be more violent than non-veteran offenders (OR = 1.648), the fact that violence only made up 2% of the offenses in four years, suggests we interpret this relationship with caution. While there was not a lot of support, this finding helps explain a rare but potentially serious phenomenon involving violent crime.

It is interesting that after running bivariate correlations on the data, no relationship was found between the dependent variables of violence and serious offenses, and offenders with veteran status. However, when I controlled variables that likely link to offenders with veteran status by running regressions, relationships between veteran status and violent charges were found. Because many factors that make up the veteran population are the same factors that make up criminal populations, it was important to

control for sex, age at time of offense, and offender educational level by running regressions and controlling for variables of interest.

In this study, offenders with veteran status were found to be older than their non-veteran counterparts. Age of veteran offenders was found to be negatively correlated with violence; meaning the older the offender, the less likely the offender was commit a violent or serious crime. The association with veterans and age could be explained by the fact that in order to be a veteran, an individual must have completed years of training and serving time in the military. It was found that violent offenses were more likely when offenders had veteran status, were male, and history of D&A or MH services, as supported by previous literature relating to negative reintegration experiences, PTSD, and TBI. Previous research outlining the effects of PTSD and TBI mental illnesses among veteran offenders also found negative coping mechanisms to include drug and alcohol abuse. Thus, accounting for control variables was very important in this study considering most veterans are male, and the relationship between offenders and having a history of D&A or MH services.

Other interesting findings that came from this study were the findings of race and employment status. In regard to race, non-white offenders in Allegheny County's pretrial services were disproportionately represented from 2010 to 2014. While non-white offenders only make up 16.6% of the Allegheny County population, they represent 50.5% of the population in pretrial services. Furthermore, a logistical regression found non-white offenders to be slightly more likely to commit violent offenses than white offenders (OR = 1.316). This finding, like that of offenders with veteran status, could be best

analyzed, keeping in mind violent arrests account for 2% all offenses reported by Allegheny County Pretrial Services between 2010 and 2014.

Furthermore, pretrial clients are disproportionately unemployed; 28% of arrestees held full or part time jobs, compared to the 57% employment rate of Allegheny County according to the Census (The United States Census Bureau, 2015). It is also an interesting finding that those offenders who were employed at the time of arrest were more likely to be charged for violent offenses. This finding is puzzling, seeing as most studies suggest employment to be a positive relationship with keeping people out of trouble and more attached to their community (Bernard, Snipes, & Gerould, 2010).

The first hypothesis in this study was found to be supported. Offenders with veteran status were found to be more likely to be arrested for violent offenses compared to non-veterans. Violent offenses made up only 2% of Allegheny County offenses from 2010 to 2014. Furthermore, it is important to keep in mind that the veteran offender population over a four year period in Allegheny County only made up 5% of pretrial services. Thus, while the odds ratios seem fairly large, the small overall numbers mean a fairly small absolute increase in odds.

My second hypothesis was not found to be supported, but that conclusion is made with caution. After controlling for all variables of interest, veteran status was found to have a relationship to violent offenses, but not related to serious offenses. This finding may imply veteran status and criminality are not related across the board. In other words, although veteran status is related to violence, but military experience does not predict nor is it related to crime seriousness. The use of negative reintegration experiences, PTSD,

and TBI as conceptual models, mirror the suggestions of the literature review in military experience changing social bond in violence but not seriousness of offenses at a leveled scale.

Limitations

One key limitation of my study begins with my dataset. I use a pretrial arrest population to determine violent and serious offenses, and not offense data; that is, I use arrestees' charge as a measure of their offending. Although a perfect relationship and correlation do not exist between arrests and offenses, previous research has used these methods of using arrest data to measure offending. MacManus et al. (2013) noted studies on American veterans' involvement with the justice system to use arrest data as a way to study veteran involvement with the criminal justice system. Elbogen et al. (2012), was another study that used arrest data to address criminality. Therefore, while still very confident in my dataset use and its ability to 'interpret' my hypothesis results within the bounds of my preliminary study.

Another major limitations of this study originated from the data available. For example, the data does not include all those arrested, but rather only those in pretrial services. Furthermore, in Allegheny County, those admitted to pretrial services is not random. In Allegheny County, there are particular cases that only call for summons (i.e. DUI and do not make up part of the pretrial services data). There is no way to know from these data whether entry to pretrial services is uniform in Allegheny County; it may vary by arrest officer bias, location of the arrest, and those inputting information into dataset.

If the offender was arrested within the greater Pittsburgh area it is likely they will end up in pretrial services. However, if offender was arrested in outskirts areas of Allegheny County, they are more likely to be taken to magistrates or given summons, unless the crime was higher level. Therefore, exclusion from pretrial services was not done at random.

Furthermore, the Allegheny County Pretrial Services data did not include cases of arrestees who were found to be driving under the influence (DUI); a particularly interesting missing piece of data considering the prevalence of substance abuse among those coping with stress, depression, or symptoms relative to some veteran populations. In Allegheny County DUI infractions result in summons to court, and not pretrial service. Having access to DUI reports would have made an interesting variable based on previous research findings of negative veteran behavioral tendencies to abuse alcohol (Greenberg, Rosenheck, & Desai, 2007).

Missing data is another issue for this analysis. The rates of missing data can be accounted for by various reasons. When observing violent variables within Allegheny County, the 37% missing data can be attributed to the fact that the violent charge went unchecked by those inputting data. Furthermore, the 48% missing data from serious offenses can be attributed to my recoding of serious offenses to only include homicide, second degree homicide, and felonies (of all grades), dropping all misdemeanor and summary offenses. Another attributor for the substantial amount of missing cases, can also be attributed to the data cleaning process, and combination of pretrial services' arrest and demographics dataset. When these datasets were merged, clients who did not have

information in both datasets were dropped from this study. This may introduce an unknown bias into the results.

The dataset examined, though large, may not be generalizable due to the nature of pretrial services. At a minimum, any efforts to generalize these findings should consider that the data only includes information for one county within the entire United States. The county's specific regulations on pretrial services, data coding, and judicial process are very subjective and do not loan themselves to generalizability. For example, although the Pennsylvania Code for felonies includes offenses which are both violent and nonviolent, the Allegheny County Pretrial Service dataset between 2010 and 2014 did not differentiate these characteristics of felonies. Therefore, offense severity in this study could only be seen as a severity index, and cannot be as specific as to pinpoint the types of offenses.

Other limitations include possible discrepancies in dataset assembly, including the information available to the county, fact checking, participant evaluations, and information available to other sectors that have been entered into the database.

Part V: Conclusion

Using Allegheny County Pretrial Services data from 2010 to 2014, this study examine two hypotheses, whether offenders with veteran status were more likely to than non-veterans to be arrested for violent offenses, and whether they were more likely to be arrested for serious offenses (i.e., homicides and felonies). Literature suggests that some veterans face unique difficulties, like PTSD, TBI, and reintegration issues that may

contribute to negative effects, like run-ins with the criminal justice system. My analysis in this study supports this idea for veteran offenders and violent offenses, but only to a small degree.

As a result, I would suggest more empirical studies be done on veteran offenders nationwide. Data collection and studies should be conducted before and during the establishment of programs inclined to solely help veterans. One example of such programs would include programs like the veteran treatment courts. Implications of these findings suggest a deceleration in assumptions and expedited programs focusing on violent veteran offenders. Perhaps a better focus would be on issues facing veterans, like the conceptual models in this study involving reintegration issues, PTSD, and TBI.

Some ways to better focus on issues facing veteran populations as a whole, would be supportive intervention recommendations, to include early intervention for anger and aggression (Washington & Yano, 2013). Furthermore, because not all PTSD types and symptoms are the same across the board, more specialized treatment on any mental health issue cases can decrease affecting symptoms (Washington & Yano, 2013). Another proposal would be to advocate for more timely assessments of PTSD, TBI, or negative reintegration experiences among veteran populations (King & Wray, 2012). Timely assessments would include involvement of primary care specialists, including psychological education opportunities, and symptom management interventions to veterans with any mental health issue (i.e. PTSD, TBI, etc.) (King & Wray, 2012). In regard to reintegration, interventions to restore family bonds could include veterans and their partners becoming reacquainted with one another through communication, balancing childcare responsibilities, addressing mood changes, and finding sources of

external support (Marek & D'Aniello, 2014). An administrative help for these issues would be to produce the appropriate tools (i.e. courses, counseling, help groups, etc.) for families to become comfortable and acclimated with one another post deployment. Likewise, decreasing issues of reintegration, such as reducing feelings of burdensomeness and isolation among veterans, may reduce risk of suicidal behavior (Brenner, et al., 2008).

Based on my findings on veteran status and violent offenses, another recommendation for programs focusing or wanting to focus on veterans would be opening acceptance of veterans with violent charges or offenses into programs like Veteran Treatment Courts (VTC). Currently, treatment courts do not follow uniform protocol on who to accept into their programs (Cartwright, 2011; NADCP, 2016; Russell, 2011). Many treatment court like Drug Court (DC) and VTC only accept and promote non-violent offenders, while others (45.9%) refuse to accept and treat offenders with violent charges (Baldwin, 2012; Cartwright, 2011; NADCP, 2016); it is treatment courts' belief that these offenders are not people who would benefit, and tend to assume violence charges to be synonymous with being hardened criminals (Cartwright, 2011). In accordance to my studies, I suggest these programs be more open to taking in and helping violent offenders with veteran status.

Furthermore, while veteran avoidance of treatment is likely, research has found some predictors of veterans' help-seeking predispositions (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). Blais et al. (2014) found whites and females to be more likely to attend treatment appointments (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). In light of these findings, perhaps more special attention of treatment should be paid to male and

non-white veterans upon this discharge or integration back into society. Furthermore, although those with reoccurring symptoms and dysphoria are more likely to attend treatment, this reach for help should be met with ease (Blais, Hoerster, Malte, Hunt, & Jakupcak, 2014). Because most veterans receive their health care outside of Veteran Affairs (VA), providers should be made aware of their patient's status and their increased risks of PTSD (Lutwak, 2013). Likewise, clinicians with knowledge of patient veteran status should refer patients to VA in order to better identify their needs and effective treatment (Reeves & Nayback, 2008). Furthermore, as a result of veteran education bills like the GI Bill and the Yellow Ribbon Program, schools and professors should also be aware of the veteran populations' needs and be prepared to direct veteran students to appropriate help (i.e. counseling, clinicians, VA, etc.).

I also propose that future studies include a code to differentiate grades (i.e. felonies, misdemeanors, etc.) to include which are violent and nonviolent in their data. This could be done by reverting back to arrest records and coding for violence for each charge in Allegheny County pretrial services data.

While this study has found offenders with veteran status to be more likely to commit a violent crime than non-veterans within Allegheny County, in order to establish what could be sustainable factors to veterans facing the justice system, we need to dig deeper and tease out what the significant links in veterans who offend. This preliminary study provides an interesting picture, and should serve as a base or further examination of current or future establishments of veteran offender programs or courts.

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