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ABSTRACT

This internship was conducted with the North Carolina Department of Health and Human Services. Specifically, work was performed within NCDHHS Injury and Violence Prevention Branch. The purpose of this internship was to learn more about the NCDHHS Injury and Violence Prevention Branch and more specifically the death reporting. Out of this internship the current project focused on these important barriers for reentry. (Lowenkamp and Latessa 2005). Social support was examined in relation to the rates of suicide within North Carolina. In order to adequately examine the social support barrier all three barriers to reentry success (i.e. substance abuse treatment, housing and employment) were examined. The first important finding is the relationship between having a criminal conviction and having a suicidal thought history. Within North Carolina, those who have committed suicide and have a criminal offender history look different as a sample from the population of all suicides. The results of the analysis support hypothesis one and two: 1) the sample of suicide victims with a criminal conviction history look different than that of all suicides in North Carolina for 2012-2014, and 2) Suicide victims are more likely to have a history of suicidal thoughts or attempts if they have a criminal conviction history. When the social support variables that are related to offender reentry variables are observed findings do not support the original hypothesis: Social Support variables related to the barriers to offender reentry success (housing, employment, substance abuse treatment) will be related to a criminal offender’s suicidal thought history and disclosure of suicidal thoughts to another individual.
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INTRODUCTION

Internship

Overview

This internship was conducted with the North Carolina Department of Health and Human Services (NCDHHS). Specifically, work was done within NCDHHS Injury and Violence Prevention Branch. The supervising professional within the Injury and Violence Prevention Branch is Mr. Scott Proescholdbell MPH, an Epidemiologist within the division. Onsite work was conducted on the NCDHHS campus in Raleigh, North Carolina and offsite work was conducted on the University of North Carolina Wilmington campus in Wilmington, North Carolina.

Duties/Goals

The purpose of this internship was to learn more about the NCDHHS Injury and Violence Prevention Branch and what it is that they do. The internship contained duties surrounding violent death reporting and processes that are present in each stage of work. These stages include data collection from various sources (i.e. law enforcement and medical examiner reports), data cleaning, creation of data reports, and dissemination of data findings. The internship had involvement in each of these areas to learn how the processes are conducted. I attended meetings with employees and key stakeholders in order to observe interpersonal relations and what the Injury and Violence Branch is expected to do. From these meetings it became clear that a codebook for the North Carolina Violent Death Reporting System, was needed. The internship also involved conducting a research project separate from the day-to-day operation of the branch that was related to my interests. More Specifically, I examined the influence of demographic
substance abuse and mental health, and legal variables on suicide among ex-offenders in North Carolina.

Proposed Project

Within the United States prison populations have steadily increased at a high rate from the early 1970s till present day (Swanson, Rohrer, Crow 2010). State and Federal records indicate that there are over 1.5 million people in state or federal correctional facilities or under some type of correctional supervision (Swanson et al 2010). With this large number of incarcerated individuals comes an increase in numbers of ex-offenders returning to society. Statistics show that between 700,000 and 750,000 offenders return to society each year (Carson 2015, Mears and Mestre 2010). Having such a large number of ex-offenders returning to society each year presents the question, how well prepared are returning ex-offenders to return to society? Research shows that much of the population of returning ex-offenders is inadequately prepared, and face social barriers that hinder their success and cause them to reoffend (Listwan et al 2006). The three most prominent social barriers include: housing, employment and substance abuse (Gunnison and Helfgott 2011, Lowenkamp and Latessa 2005).

Social support was examined in relation to the rates of suicide within North Carolina. In order to adequately examine the social support barrier all three barriers to reentry success (i.e. substance abuse treatment, housing and employment) was incorporated. This will help to show how each barrier is important, and often affect one another. Due to the scope of this study, the geographical context of North Carolina will be used. This may further be narrowed to the county level, depending on data available.
LITERATURE REVIEW

Statement of the Problem

Being an ex-criminal offender carries with it many burdens, both foreseen and unforeseen. Research shows that ex-offenders are subject to social strains that are different from that of the general population (Listwan et al 2006). Current research has focused on differences of offender populations currently incarcerated or under supervision, and less so on ex-offenders who have served their punishment. Research is necessary to show how prior criminal offending can alter an individual’s life situation, and how these differences should be addressed. When discussing suicide it is important to look at this select population of ex-offenders to identify trends that may differ from the general population. This may allow for additional programming for current and ex-offenders that is specific and effective to their population. In order to do this, research must be conducted to show how this unique population looks.

Social Support and Suicide

When observing possible causal factors of suicide or suicidal behavior, research shows that one of the most prominent factors is social support (Kleiman and Liu 2013). Rates of social support are believed to have an inverse correlation to rates of suicide and suicidal behavior (Kleiman and Liu 2013). It is believed that the more pro-social support systems that an individual has, the less likely they are to commit suicide or exhibit suicidal behavior (Kleiman and Liu 2013). This is believed to be due to a number of reasons. One reason is the increased self-esteem that can be manifested out of pro-social relationships. When self-esteem is higher, rates of suicide and suicidal behavior are lower (Kleiman and Liu 2013). Pro-social relationships are also believed to decrease the likelihood of suicide due to interpersonal coping. Interpersonal coping can allow for an individual to confide in another person and work difficult or stressful
situations or events (Kleiman and Liu 2013). This may have an impact when experiencing a negative life event, such as involvement in the Criminal Justice System. Additionally, the presence of pro-social individuals may allow for the identification of suicidal warning signs (Moore et al 2011). This can help through the outside referral for an individual to seek care, or the adoption of some type of intervention process (Moore et al 2011).

Social support has also been linked to suicide-prevention behaviors in addition to situational obstacles (Moore, Cigalarov, Kostantin, Chen, Martinez and Hindman 2011). This was observed in the context of the workplace, coupled with the use of gatekeeper training programs. These programs allowed supervisors and managers to learn social support skills to utilize when working with there employees. Research shows that supervisor support may alter situational obstacles and their effect on suicide-prevention behaviors (Moore et al 2011). These findings suggest that social support in the workplace has an effect on the presence of suicide-prevention behaviors among employees (Moore et al 2011).

Additional research has been conducted to examine how social support and self-esteem work together in order to influence suicidal thoughts and behaviors. Research shows that self-esteem acts as a mediating factor in a relationship between suicide and social support (Kleinman Riskind 2013). Additionally, research shows that both self-esteem and social support can act individually, as well as together to influence suicidal thoughts and behaviors (Kleinman Riskind 2013). Specifically, studies show that on average the higher rates of self-esteem and social support that an individual is subject to, the lower the rates of suicidal thoughts and behaviors (Kleinman Riskind 2013). Additionally, when acting independently, higher rates of perceived social support are believed to decrease suicidal thoughts or behaviors (Kleinman Riskind 2013).
Barriers to Criminal Offender Success

Housing

Upon reentry into society, ex-offenders are subject to extremely difficult obstacles surrounding housing. Within North Carolina, offenders are subject to movement throughout the state based on facility resources, offender needs, and facility security level (Carson 2015). This creates an initial barrier in the fact that many offenders commit crimes outside of their home county or state or are moved from facility to facility separating offenders from community support, friends and family (Listwan et al 2006). Ex-offenders are subject to finding community placement based on a predetermined case plan. This often leads to offenders being housed in an unfamiliar area, with very little social support that would likely be available in a home county with proximity to family and familiar community organizations (Witfree and Jiang 2010). The absence of social support has been identified as a factor that is shown to increase an ex-offender’s likelihood to reoffend (Gunnison and Helfgott 2011). Being subject to an unfamiliar environment may increase feelings of isolation and anxiety leading to the use of antisocial behaviors as a coping mechanism (Listwan et al 2006). These antisocial behaviors are likely to be exhibited in the form of criminal offending (Lipsey et al 2007).

In addition to the location of housing as an obstacle are the monetary obstacles associated with acquiring housing. Many offenders who may have had adequate housing prior to incarceration may be forced to forfeit their property to the State due to the nature of their crime (Cowen and Fionda 1994). Once an ex-offender returns to society they often have limited financial resources to acquire new housing. Ex-offenders often have very little or bad credit, causing them to be unavailable to purchase or rent (Helgott 1997). Many rental properties also
require rental history to be available in order to prove the tenant is a responsible renter. Because of the background of ex-offenders and their time spent incarcerated, there is often no rental history available (Helgott 1997). Financial burdens also limit the housing available to ex-offenders. Housing availability is often contingent on money put upfront by a renter. Many ex-offenders have little money to put up for housing directly after release (Cowen and Fionda 1994). In addition to money spent up front, the amount an ex-offender can spend on monthly rent or mortgage payments is often limited due to employment status and restitution payments (Helgott 1997).

Due to these financial burdens many ex-offenders may seek to participate in public housing programs. This may seem like a viable option, but due to public housing laws many ex-offenders are not eligible for public housing benefits (Cowen and Fionda 1994, Cain 2003). United States Congress enacted the 1988 Anti-Drug Abuse Law, which made public housing authorities that received federal funding include criminal activity provisions (Cain 2003). This allowed for the legal grounds for eviction or denial of housing due to a tenants criminal activity (Cain 2003). Public housing under the Housing Act of 1985 is also required to be non-discriminatory in offering housing applications to homeless community members (Cowen and Fionda 1994). Despite this law, because of criminal activity, many public housing authorities do not accept applications from ex-offenders because of perceived community threats (Cowen and Fionda 1994). This becomes an issue when a returning offender does not have the social support that may provide subsequent housing and may not have adequate means of providing housing for themselves.
Housing and Social Support

Research linking social support and housing shows the importance of obtaining a stable residence, as well as, community factors and how this can alter the amount of social support an individual is able to obtain (Witfree and Jiang 2010, Duwe 2012). When offenders return to unsafe, economically disadvantaged communities they are likely lacking social capital (social support) because of unfamiliarity with the community or its members (Duwe 2012). Some researchers claim that this factor is mitigated by family support that is increasingly present in low-income communities (Witfree and Jiang 2010). Contradicting this is the increased absence of familial ties among offenders who are more likely to have strained or broken relationships (Duwe 2012). This absence of pro-social support within unsafe, low-income areas will likely result in the adoption of anti-social support, which is associated with reoffending (Duwe 2012). Relatedly offenders may cope by isolating themselves, which is associated with suicide (Duwe 2012, Kleiman and Liu 2013)

Employment

Employment is believed to be the toughest barrier ex-offenders face because of decreased employment opportunities and limited employability skills (Listwan et al 2006). At the same time employment is believed to be the most important factor in preventing recidivism, by allowing for monetary independence, the creation of legitimate social bonds and the participation in pro-social relationships (Lowenkamp and Latessa 2005). Employment is directly related to housing in that it is often a necessity in acquiring a solid employment opportunity, and solid employment is necessary for affording adequate housing. Housing location can also affect
employment opportunities. Ex-offenders are more likely to live in low-income areas where fewer employment opportunities exist (Gunnison and Helgott 2011). Substance abuse also affects employment through job availability through drug testing and job performance while employed (Gunnison and Helgott 2011).

One obstacle for employment ex-offenders are subject to is lack of job-skills and training, as well as general education. Correctional facilities often offer some types of job training, but they are often limited. Often inmate interest in a training program exceeds the its program availability (Listwan et al 2006). Coupled with this is the overall low educational level of offenders. Studies show that 7 out of 10 inmates function at the lowest literacy level (Gunnison and Helgott 2011) and about 40% of adult inmates have a high school degree or general education diploma (GED) (Listwan et al 2006). When correctional facilities fail to educate or train offenders while they are incarcerated, they perpetuate disadvantage among this offender group. When ex-offenders reenter society with little to not education or training they are unable to secure employment that will have a high enough level of income to support them (Gunnison and Helgott 2011). When access to legitimate means of support is denied, ex-offenders are more likely to reoffend in order to support themselves (Lowenkamp and Latessa 2005).

In addition to education and job training, researchers identify the importance of preparing offenders with the social skills to function in society and an employment environment (Listwan et al 2006). Many ex-offenders have not participated in a structured employment environment for an extended period of time, and some have never participated in structured employment setting (Lowenkamp and Latessa 2006). For this reason, many scholars believe that correctional facilities should offer Cognitive Behavioral Treatment (Listwan et al 2006). Cognitive
Behavioral Intervention or Therapy is a rehabilitation practice that seeks to alter current incarcerated individuals' behavior and thinking patterns, with the overall goal of giving them the skills to conduct themselves in a pro-social manner and reduce criminal offending (Lipsey 2007). This is done so through addressing antisocial thoughts and giving offenders the skills to act in a pro-social way (Latessa 2007). Pro-social thoughts and behaviors are believed to increase employment success through helping ex-offenders deal with a new set of authorities, rules and social situations (Listwan et al 2006). If these practices are not present in the reentry process employment success is likely limited (Listwan et al 2006).

Employment and Social Support

Employment is believed to be a major source of pro-social support for ex-offenders in that it requires adoption of norms and obligations that create interdependencies among individuals (Duwe 2012, Moore et al 2011, Macklin 2013). These interdependencies create pro-social relationships that are shown to reduce reoffending (Duwe 2012). Further research into social support in the workplace shows that it not only creates pro-social relationships, but it can reduce stressors among employees (Moore et al 2011). Strong social support networks are observed to act as buffers for workplace stressors or strains (Moore et al 2011). They allow for avenues of discussion and validation of thoughts and feelings that may allow for better decision-making processes. These benefits are believed to help support an individual in other areas outside of employment (Duwe 2012).

Substance Abuse

Related to both housing and employment substance abuse is also a determinant of reentry success. Within the United States there has been an increase in drug-related criminal activity
These crimes are identified as those that are caused or driven by the intoxication or byproduct of drug use, committed for the purpose of supporting drug habits, or to manipulate and profit from the drug-using population (Gottfredson, Kearley, and Bushway, 2008). Between 1990 and 2006, The Bureau of Justice Statistics found that arrests attributed to substance abuse rose from 1.0 million to 1.7 million individuals (Bureau of Justice Statistics 2007). Coupled with the overall increase in drug-related crimes came the discovery that the same offenders were recidivating by committing drug-related crimes (Gottfredson et al 2008, Gunnison and Helfgott 2011).

Research has shown that treatment is largely associated with reducing offender rearrest and reconviction rates (Hiller, Knight, & Simpson, 1999). Many drug-related crimes stem from acts committed while using a substance or acts used to support one’s substance abuse habit. Research also shows that substance abuse among offenders and ex-offenders is related to rates of suicide. Suicide among ex-offenders is more likely to occur within single, white males that have a substance abuse disorder (Daniel and Fleming 2006). Within the state of North Carolina, suicide among males is 3.5 times more likely than among women and about 89.4% of suicides occur among whites (NC-VDRS 2013). Additionally, about 15.3% of suicide victims show a history of substance abuse and, of those tested for substances at the time of suicide, about 29.0% had alcohol present in their system (NC-VDRS 2013). Upon release there are many services that are not available to ex-offenders due to reasons such as physical proximity to service providers, monetary shortages, and lack of insurance. This lack of access to services, coupled with low employment and housing, are believed to cause feelings of distress or desperation that may contribute and lead to suicide (Daniel and Fleming 2006).
Felony Stigmatization: Labeling Theory

Originating in the mid- to late-1960s in the United States, labeling theorists brought to light the role of government agencies, and social processes in general, in the creation of deviance and crime. The theory represented both a theoretical and methodological break from the past. Scholars of crime had been primarily interested in studying what factors caused individuals to commit acts of crime and deviance (Agnew et al 2014). Whether the causal factors were biological (e.g., atavism), psychological (e.g., impulsivity), or sociological (e.g., deviant peers or disadvantage neighborhoods) (Agnew et al 2014). Up to this point the scientific study of crime and deviance had, for the most part, focused on those factors that produce it, and on the essential differences between the “normal” and the “deviant.” Labeling theorists are generally less interested in the causes of crime, and are more interested in the societal reactions to crime and deviance and how crime and deviance are persisted (Agnew et al 2014).

Labeling Theory asserts that the initial act of deviance, or in this case specifically criminal offending, is not as important as the organization of deviance into active roles, and the societal reactions (Agnew et al 2014). The first act of deviance brings about some type of social penalty. This social penalty brings with it prescribed viewpoints of the behavior that become associated with the individual. These prescribed viewpoints create a label that brings about social stigmas that become attached to the individual (Agnew et al 2014). When individuals associate with these stigmas they identify with specific environments and behaviors that greater society has attached to them they often then commit further acts of deviance. When a pattern of deviance
occurs, an individual likely will become isolated from society, and begin to associate with other deviants within a subculture. This further perpetuates and validates deviant activity.

Labeling Theory applies directly to ex-offenders returning to society who will be subject to carrying with them the ex-offender label. The felony label carries with it many implications both seen and unforeseen. This label has significant implications for access to housing and employment opportunities, both of which negatively impact the quality of life an individual may have available (Lowenkamp and Latessa 2005).

Behavioral Modification: Social Learning Theory

Cognitive Behavioral Therapies are used by correctional facilities in order to prepare offenders for reentry into society and give offenders the skills to succeed in legitimate activities such as substance abuse treatment and employment. These therapies were developed from theoretical framework and understanding of Social Learning Theory. Social Learning Theory can be used to describe why Cognitive Behavioral Interventions were created, and how they are intended to work to reduce criminal offending and recidivism. Though reducing criminal offending and recidivism were the original goals of behavioral interventions can be used to develop pro-social attitudes and behaviors that can transfer into everyday experiences, such as the workplace.

Developers of behavioral rehabilitation programs cited the work of Bandura and his explanation of Social Learning Theory. Bandura referred to this as Social Cognition Theory (Lipsey 2007). Bandura believed that learning is done so through the observation of direct and indirect exposure to stimuli and consequences (Lipsey 2007). In other words, when individuals are exposed to a situation they learn how to act based on the situational context, whether they are
aware of the learning process or not. For this reason, if individuals are subject to an antisocial environment they will likely develop antisocial thoughts and behaviors. These antisocial thoughts and behaviors are believed to contribute to criminal activity (Lipsey et al 2007). Behavioral rehabilitation is derived from social learning, believing that if an individual can learn pro-social thoughts and behaviors they will no longer criminally offend. Cognitive Behavioral programs seek to create a social learning institution that allows inmates to learn and use appropriate actions. It helps them to use contextual cues within their surroundings to develop pro-social behavior (Bush et al 2011).

Social Learning Theory stems out of and is closely related to Differential Association Theory (Agnew et al 2014). Differential Association, at the basic level, asserts that behavior is learned through the interaction process (Agnew et al 2014). This means that the behaviors that an individual exhibits are learned when individuals interact with each other through some form of contact. Ronald Akers identifies how the concept of differential association is lacking as it doesn’t explain exactly how behaviors are learned or mechanisms for learning (Agnew et al 2014). Akers argues in his theory, “A Social Learning Theory of Crime”, that criminal activity is learned through the exposure and adoption of definitions favorable to crime (Agnew et al 2014). Definitions are attitudes and meanings that an individual attaches to behavior. In each situation these attitudes and meanings shape how an individual will act and why they will act a certain way.

Using this concept Cognitive Behavioral Interventions seek to address the thought processes behind individual behavior (Bush et al 2011). A portion of each intervention deals with what is identified as cognitive self-change. The first step in cognitive self-change seeks to give
the individual the tools to identify their specific thoughts and feelings (Bush et al 2011).

Participants are asked to identify what attitudes and beliefs they hold and how they have come to have them (Bush et al 2011). For example, a belief could be that family is important. The individual would then be asked why exactly family is important to them based on their thoughts and beliefs. From there participants are asked to identify how their thoughts and beliefs dictate their actions (Bush et al 2011). It is believed that if they are able to identify why they act the way they do possible flaws in their judgment may be identified (Bush et al 2011).

Within Social Learning Theory these behaviors are then perpetuated by what Akers refers to as differential reinforcement (Agnew et al 2014). Differential reinforcement is when behaviors are either encouraged or discouraged through the perceived rewards and punishments that follow a specific behavior (Agnew et al 2014). These rewards are benefits that an individual identifies may come after committing a specific act. Rewards are benefits an individual perceives will come with behavior, where as, punishments are consequences that an individual identifies with a given behavior. When an individual receives rewards from a particular behavior they are likely to continue to engage in said behavior (Agnew et al 2015). Differential reinforcement is used to explain criminal activity through the process of criminal behavior having a higher reward value than punishment value for a specific individual and this higher reward encourages criminal behavior (Agnew et al 2014, Lipsey et al 2007).

Cognitive Behavioral Interventions address the concept of differential reinforcement, though it is not directly stated, where individuals must identify areas of risk (Bush et al 2011). Though this is different than the specific form of differential reinforcement that is identified by Akers, recognizing risk seeks to balance the differential nature of the perceived rewards and
punishments (Bush et al 2011). Through the process of recognizing risk, punishments become greater and may be observed to outweigh the rewards. If this happens, criminal activity may be avoided because the costs of the behavior would be too high for the individual (Agnew et al 2014). Participants are asked to identify as many risks to a behavior that can be identified and these risks can come in the form of legal, physical, emotional, etc. (Bush et al 2011). From there, participants are encouraged to create the best course of action based on the risks and rewards associated with their behavior (Bush et al 2011).

Cognitive Transformation and Desistance from Crime: Importance of Social Ties

“Cognitive Transformation and Desistance from Crime” is a developmental theory that seeks to explain why some individuals stop criminal activity at different times in the life course (Agnew et al 2014). Giordano and colleagues argue that desistance is influenced by two components (Agnew et al 2014). The first is criminal offenders must have the ability to develop legitimate ties to society. This could be through relationships or legitimate work that involve ties to pro-social behavior (Agnew et al 2014). The second is criminal offenders must participate in the creation of bonds to these legitimate sources. These bonds must involve the offenders “hook” to society and prevent them from engaging in antisocial behavior (Agnew et al 2014). In order to engage in this process Giordano and colleagues argue that there must be a cognitive transformation. During this cognitive transformation, offenders must identify with a pro-social identity and separate themselves from a “criminal” identity (Agnew et al 2014). They argue that without this cognitive shift, a criminal offender will not be able to act in a pro-social manner (Agnew et al 2014).
The components outlined by Giordano and colleagues provide the foundation for these programs, despite the fact they are not explicitly designed that way. Participants are given tools to develop social skills that help each participant develop and maintain relationships (Bush et al 2011). For example, one social skill outlined by these programs is active listening. Participants are given steps in order to actively listen to those they come into contact with in order to give them the appropriate information to act in the situation (Bush et al 2011).

Developmental Theory can be used to show theoretically how participation in legitimate work and therapeutic communities would have an effect on levels of social support and ultimately lower rates of suicide among ex-offenders. Upon reentry into society, participation in a legitimate workforce and/or therapeutic community may be that “hook” that offers ties to pro-social behaviors and increases social support. This “hook” may break them free from the criminal identity, and allow an individual to identify himself or herself with the type of work they conduct (i.e. plumber, mechanic, counselor) or something other than an “ex-offender”. Once in the workforce or community, pro-social bonds may be developed with not only the act of participating in a legitimate workforce, but through engaging in pro-social relationships. Engaging in pro-social relationships will likely allow for positive reinforcement and support. With each layer of pro-social bonding the likelihood of suicidal behavior is decreased (Bush et al 2011).
METHODS

Study Purpose and Design

Through my internship I had access to the NC-VDRS dates that included all suicides in the State of North Carolina for 2012-2013. The focus of this research project is on examining the context of suicide among ex-offenders (n=392) as compared to non-ex-offenders (n=2,162). Suicide will be defined according to the definition used by the NC-VDRS. The NC-VDRS classifies suicide as, “a death resulting from the intentional use of force against oneself. A preponderance of evidence should indicate that the use of force was intentional. Suicides are classified among violent deaths only for people ages 10 or older” (NC-VDRS 2013). Data will be observed to determine if suicide among ex-offenders in North Carolina is similar or different to suicide in the general population of North Carolina. Further analysis will be used to examine the following hypotheses:

1. The demographic profile of suicide victims with a criminal conviction history is different from that of non-offender suicide victims in North Carolina 2012-2013.
2. Ex-offender suicide victims are more likely to have a history of suicidal thoughts or attempts.
3. The lack of social support (i.e. housing, employment, substance abuse treatment) is significantly related to a criminal offender’s suicidal thought history and disclosure of suicidal thoughts prior to death.
Data Sources

The data that is used for this study is the North Carolina Violent Death Reporting System. The NC-VDRS is a Center for Disease Control-funded state-wide system that compiles data on deaths occurring within the state of North Carolina. These deaths include those that result from violence, homicide, suicide or unintentional means. The reporting system collects information on the victims, suspects and circumstances of each violent death. Additionally, information regarding offenders’ criminal history was obtained through the North Carolina Department of Public Safety Offender Records. This allowed for the linkage of data on suicide from the NC-VDRS and offender records from the NCDPS.

The NC-VDRS collects data from law enforcement and coroner/medical examiner reports. These data are abstracted from the reports and recorded into the NC-VDRS annually. For this project, suicide data collected from the years 2012 and 2013 was separated out. At the onset of the project data for these years included identifying information such as name, birth date, county of residence and county of injury (where the victim died). In order to ensure the safety of these data, it was encrypted and stored on a secure server at the NCDHHS campus in Raleigh, North Carolina.

Because the NC-VDRS does not record information regarding whether a victim was a criminal offender, additional data collection was necessary to identify offender status. This was done so through the North Carolina Offender Search. This is a public record search portal that allows an individual to look up an individual’s offence history, which are public record in the state. This search was conducted by individually entering every victim into the search portal with the attempt to match suicide victims with possible criminal offenses. Matches were determined valid based on a match of the victims first and last name, middle initial, birth date and county of
residence. For individuals with a criminal history, the following data were recorded:
misdemeanor or felony offense, punishment type (e.g. probation, incarceration, etc.), type of
criminal convictions, and whether they were a violent offender. These data were the NC-VDRS
suicide dataset.

The NC-VDRS and offender datasets were then merged to create one working dataset. The newly created dataset contained all suicides for the years 2012-2013, which contained 2554 cases. 392 of these cases of suicide had a criminal offense history. The datasets were merged much the way criminal history was obtained. Matches were determined valid based on a match of the victims first and last name, middle initial, birth date and county of residence. Only one case was not matched because it failed to match on all three criteria. This case only matched first name, last name and birth date (i.e. different middle name and county of residence). This case was excluded from analysis because it was unable to be matched. Once the merge was completed, identifying information was removed and cases were labeled based on the NC-VDRS case ID number that is assigned during abstraction.

Variables

Demographic

Sex

The sex variable is a nominal level variable that is defined as the victim’s biological sex at the time of the incident. This biological classification must be indicated from one of the three primary data sources: death certificate, coroner/medical examiner, or law enforcement reports. If there is a disagreement of classification between the data sources the victim may be classified as transgender. For the sex variable the possible classifications are male, female or unknown. The
sex variable was coded into a dichotomous variable with the values of one for male and zero for female.

Age

The age variable is a ratio level variable that records the suicide victim’s age in number of years. This age is recorded as age at time of death. In some cases the victim’s exact age is not known and may be estimated using the mid-point of a five-year range (if range is provided). If there is not five-year range provided the age would be categorized as unknown.

Race

The race variable is a categorical level variable that records the suicide victim’s reported race. The victim’s race was recorded based on assessment of law enforcement, medical examiners, and self-reports of victim prior to injury. Race was reported in the following categories; White, Black, Asian, American Indian, other and unknown. The race variable was coded into a dichotomous variable with the values of one for white and zero for other race.

Residency County

The residency county variable is a nominal level variable that is used to represent the county within North Carolina in which the victim was reported to live prior to the injury. There are 100 listed counties in North Carolina that are numbered in corresponding alphabetical order. If the county of residence is not listed it is categorized as unknown. The residency county variable was used data merging processes, and was not included in data analysis.
**Injury County**

The injury county variable is a nominal level variable that is used to represent the county within North Carolina in which the victim was reported to be subject to injury. There are 100 listed counties in North Carolina that are numbered in corresponding alphabetical order. If the county of injury is not listed it is categorized as unknown. The injury county variable was used in data merging processes, and was not included in data analysis.

**Housing**

**Homeless**

The homeless variable is a nominal level variable that describes the victim’s homeless status at the time of injury. A homeless person is defined as an individual that resides in one of the following: “1) places not designated for or ordinarily used as a regular sleeping accommodation for human beings, including a car; private vehicle; park on the street or other outdoor space; abandoned building; bus or train station; airport; or camping ground, or 2) A supervised publically or privately operated shelter or drop-in center designated to provide temporary living arrangements; congregate shelters; temporary accommodations provided by a homeless shelter; or transitional housing for homeless persons” (NC-VDRS 2013). The categories for homeless status are no, yes or unknown. Additionally, individuals who have no home of their own, but are residing indefinitely with friends or family that have a residential address are not considered homeless. The homeless variable was coded into a dichotomous variable with the values of one for homeless and zero for not homeless.
Family Problem

Family Problem is a nominal level variable that reports whether there was a problem with a current or former family member that has appeared to contribute to suicide or an undetermined death. These problems that may contribute to death may be divorce, break-ups, argument, documented jealousy, conflict or discord. For this variable, Family Problems has the response categories of yes, and combined no, not available and unknown. The family problem variable was coded into a dichotomous variable with the values of one for having family problems prior to death and zero for no reported family problems prior to death.

Employment

Usual Occupation

The usual occupation variable is a nominal level variable that represents the kind of business a victim’s occupation is related to. This is not necessarily the industry the individual was working in at the time of injury, rather the field in which the majority of work experience was encompassed. Examples of this include farming, insurance and government. The Usual Occupation variable used occupation codes that are recorded on death certificates. The occupation codes are based on the Bureau of Labor Statistics’ Standard Occupational Classification guidelines.

Occupational Current Text

The occupational current text variable is a text variable that represents the status of the individuals’ occupational involvement at the time of injury. This is the industry the individual was working in at the time of injury. The categories for occupational status include employed, unemployed, homemaker, retired student, disabled, self-employed, not applicable and unknown.
Individuals who work more than 17.5 hours per week are considered employed, and those who work less are considered unemployed. Victims that are under the age of 14 fall into the not applicable category. For analysis, a second variable was created based on a recode of Occupational Current Text. The variable was recoded into the categories of employed, unemployed, retired and unknown. For logistical regression analysis this variable was coded into a dichotomous variable with the values of one for employed and zero for unemployed or other.

Job Problem

The variable Job Problem is a nominal level variable that reports whether a victim was involved in a problem related to their employment that appears to have contributed to or been in recent proximity to their death. Recent Job Problems include things such as being fired, placed on suspension, lay-offs, company closure, or other issues within an occupation. The response categories for this variable are yes, for having a job legal problem that appears to have contributed or been in close proximity to death and a combine category of no, not applicable or unknown. The job problem variable was coded into a dichotomous variable with the values of one for having a job problem prior to suicide and zero for not having a job problem prior to suicide.

Substance Abuse/Mental Health Variables

Mental Health Problems

The mental health problem variable is a nominal level variable that reports whether a victim had a current mental health problem. The victim is documented to as having a mental health problem if there is documentation of such in the medical examiner or law enforcement reports. Mental health problems include disorders that are listed in the Diagnostic and Statistical
Manual of Mental Disorders Fifth Editions or the DSM-5. These disorders include, but are not limited to, depression, schizophrenia, anxiety, and neurodevelopmental disorders. The classification categories for this variable are yes, if there is documentation of a disorder on medical examiner or law enforcement reports, and a combined category of no, not applicable or unknown. The mental health problem variable was coded into a dichotomous variable with the values of one for having a mental health problem prior to suicide and zero for not having a mental health problem prior to suicide.

*Mental Health Illness Treatment*

The mental health illness treatment variable is a nominal level variable that reports if a participation in either mental health or substance abuse treatment. Treatment is identified to include seeing a psychiatrist, psychologist, medical doctor, therapist, or other counselor for mental health or substance abuse problem; receiving a prescription for an antidepressant or other psychiatric medicine; attending anger management classes; residing in an inpatient, group home, or halfway house for mental health or substance abuse problems; or alcohol or narcotics anonymous. The classification categories for this variable are yes if the victim is currently in treatment and a combined category of no, not applicable or unknown. Current treatment is defined as having a current prescription for psychiatric medication, saw a mental health professional within the past two months or participated in treatment at the time of injury. The mental illness treatment variable was coded into a dichotomous variable with the values of one for being in mental health treatment prior to suicide and zero for not being in mental health treatment prior to suicide.
**Alcohol Problem**

The variable alcohol problem is a nominal level variable that identifies whether a victim had an alcohol dependency or alcohol problem. For this variable, if a victim was perceived by themselves or others to have an alcohol addiction or problems stemming from alcohol, then an alcohol problem was indicated. If a victim was recorded to participate in rehabilitation, such as substance abuse treatment due to alcohol, then having an alcohol problem was recorded. This participation includes programs such as self-help groups and 12-step programs. The response categories for this variable are yes for having an alcohol problem, and a combined category of no, not applicable or unknown. The alcohol problem variable was coded into a dichotomous variable with the values of one for having a alcohol problem prior to suicide and zero for not having a alcohol problem prior to suicide.

**Other Substance Abuse Problem**

The variable substance abuse other is a nominal level variable that identifies whether a victim was perceived by themselves or others to have a problem with or addiction to any other substance other than alcohol. This perceived substance abuse problem does not have to be related to the death of the victim. Substance abuse can contain the use of illegal drugs, prescription drugs and inhalants. Marijuana use is only coded as a substance abuse problem if the observed use is chronic or abusive. Additionally, if there was a problem of substance abuse that resides in the past and has sense been resolved, having a substance abuse problem is not recorded. The response categories for this variable are yes for having a substance abuse problem, and a combined category of no, not applicable or unknown. The substance abuse problem variable was
coded into a dichotomous variable with the values of one for having a substance abuse problem prior to suicide and zero for not having a substance abuse problem prior to suicide.

Suicide Variables

*Suicide Attempt History*

The variable Suicide Attempt History is a nominal level variable that reports whether or not the victim had a history of attempting suicide prior to the fatal injury. Suicide attempts are defined in accordance with The Center of Disease Control’s definition of “A non-fatal, self-directed, potentially injurious behavior with any intent to die as a result of the behavior; which may or may not result in injury.” The response categories for this variable are yes, for having a history of attempting suicide and a combine category of no, not applicable or unknown. The suicide thought or attempt history variable was coded into a dichotomous variable with the values of one for having a suicidal thought or attempt history prior to suicide and zero for not having a suicidal thought or attempt history prior to suicide.

*Suicide Thought Disclosure*

The variable Suicide Thought Disclosure is a nominal level variable that reports whether a victim had disclosed suicidal thoughts, plans or attempts prior to the suicide reported on the law enforcement or medical examiner’s report. These thoughts or plans could have been reported through verbal, written or electronic means. Additionally, these thoughts and plans can be expressed directly (e.g. “I want to kill myself”) or indirectly (e.g. “I don’t want to go on living”). The response categories for this variable are yes, for having a history of suicidal thoughts or plans and a combine category of no, not applicable or unknown. The suicidal thought disclosed
variable was coded into a dichotomous variable with the values of one for having disclosed thoughts of suicide prior to death and zero for not having disclosed suicidal thoughts prior to death.

Legal Variables

Committed Criminal Offense

The variable Committed a Criminal Offense is a nominal level variable that reports whether or not the suicide victim had committed a criminal offense at any time in their life prior to their suicide. This data was collected through the North Carolina Public Offender Records through a manual look up process. Suicide victims were matched with offender records based on their name (first, last and middle initial), date of birth, race and county of residence. The response categories for this variable are yes, for having committed a criminal offense prior to suicide, and no for not having committed a criminal offense prior to suicide. The criminal offense variable was coded into a dichotomous variable with the values of one for having criminal conviction prior to suicide and zero for not having a criminal conviction prior to suicide.

Committed Three or More Criminal Offenses

The variable Committed Three or More Criminal Offenses is a nominal level variable that reports whether or not the suicide victim had committed three or more criminal offenses at any time in their life prior to their suicide. This data was collected through the North Carolina Public Offender Records through a manual look up process. Suicide victims were matched with offender records based on their name (first, last and middle initial), date of birth, race and county of residence. The response categories for this variable are yes, for having committed three or more criminal offenses prior to suicide, and no for not having committed three or more criminal
offenses prior to suicide. The committed three or more criminal offenses variable was coded into a dichotomous variable with the values of one for having three or more criminal convictions prior to suicide and zero for not having three or more criminal convictions prior to suicide.

*Committed a Violent Criminal Offense*

The variable Committed a Violent Criminal Offense is a nominal level variable that reports whether or not the suicide victim had committed a violent criminal offense at any time in their life prior to their suicide. A violent criminal offense is any criminal offense that results in the injury or attempted injury of himself or herself or another individual. This data was collected through the North Carolina Public Offender Records through a manual look up process. Suicide victims were matched with offender records based on their name (first, last and middle initial), date of birth, race and county of residence. The response categories for this variable are yes, for having committed a violent criminal offense prior to suicide, and no for not having committed a violent criminal offense prior to suicide. The violent criminal offense variable was coded into a dichotomous variable with the values of one for having a violent criminal conviction prior to suicide and zero for not having a violent criminal conviction prior to suicide.

*Recent Criminal Legal Problem*

The variable Recent Criminal Legal Problem is a nominal level variable that reports whether a victim was involved in a criminal legal problem that appears to have contributed to their death. Recent criminal legal problems include such things as recent arrest, law enforcement pursuit, or impeding criminal court dates. Military crimes are also included in recent criminal legal problems (e.g. AWOL). The response categories for this variable are yes, for having a
criminal legal problem that appears to have contributed to death and a combine category of no, not applicable or unknown. The recent criminal legal problem variable was coded into a dichotomous variable with the values of one for having a recent criminal legal problem prior to suicide and zero for not having a recent criminal legal problem prior to suicide.

*Legal Problem Other*

The variable Legal Problem Other is a nominal level variable that reports whether a victim was involved in a civil (non-criminal) legal problem that appears to have contributed to their death. Legal problem other includes such items as divorce, custody dispute or legal problems that were not specified as criminal or civil, among others. The response categories for this variable are yes, for having a victim was involved in a civil (non-criminal) legal problem that appears to have contributed to death and a combine category of no, not applicable or unknown. The recent civil legal problem variable was coded into a dichotomous variable with the values of one for having a recent civil legal problem prior to suicide and zero for not having a recent civil legal problem prior to suicide.

Model of Analysis

Figure 1 displays the ideal model of analysis, displaying the ideal relationship between the dependent variables (i.e. suicidal thought history, disclosure of suicidal thoughts) and independent variables (i.e. controls, social support, other). Ideally all independent variables would be observed for their predictive relationship of suicidal thought history and disclosure.
Figure 2 depicts the used model of analysis for displaying the ideal relationship between the dependent variables (i.e. suicidal thought history, disclosure of suicidal thoughts) and independent variables (i.e. controls, social support, other). Because there is are high rates of missing data for a number of independent variables (i.e. employment, homelessness, violent conviction) they were omitted from the original ideal model. Figure 2 depicts the independent variables that are observed for their predictive relationship of suicidal thought history and...
disclosure. Due to missing data, it is likely that hypothesis three will not lend itself to being analyzed.

Figure 2: Final Theoretical Model Analysis- Post Demographic Analysis

RESULTS

Descriptive Data

Initial descriptive statistics were conducted in order to examine the demographic profile of all suicides victims in North Carolina for years 2012 through 2013 and are presented Table 1. The demographic breakdown shows what the sample looks like based on sex, race and age. The
majority of suicide victims in North Carolina in 2012-2013 are male (75.4%), white (90.4%) and have an average age of 47.5 years. Approximately 15.3% of suicide victims have committed a criminal offense in their lifetime. Additionally, 8.8% have committed three or more criminal offenses and 6.6% have committed a violent criminal offense.

Table 1 also shows the descriptive data for variables chosen to represent the barriers to success (e.g. housing, employment and substance abuse treatment) and shows some initial issues. One initial issue is the very low number of suicide victims being classified as homeless (0.4%) and 66.2% of cases have unknown employment status. As a result of missing data, the employment status variable was excluded from further analysis. In addition 44.9% of suicide victims were reportedly involved in treatment at the time of death, 25.7% were reported to have an alcohol use problem and 15.4% had a drug problem that was unrelated to alcohol. Prior to the incident of death, 26.5% of North Carolina suicide victims had a history of attempting or exhibiting suicidal thoughts or behaviors. More strikingly, about 24.7% of North Carolina suicide victims had disclosed thoughts of suicide.
Table 2 presents descriptive statistics for suicide victims with a criminal record in North Carolina for years 2012 through 2013. All variables that were chosen for inclusion in analysis

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were identified based on frequency by their percentage of occurrence and the mean for age. The demographic breakdown shows what the sample looks like based on sex, race and age. The majority of suicide victims in North Carolina in 2012-2013 who have committed a criminal offense are male (88.8%), white (87.5%) and have an average age of 42.3 years. This differs from all suicides in 2012-2013 with a higher percentage of males, and a slightly lower average age. When legal variables are viewed the sample shows only suicide victims that have committed a criminal offense. Of this sample, 57.1% have committed three or more criminal offenses and 42.9% have committed a violent criminal offense.

Table 2 also shows the descriptive data for variables chosen to represent the barriers to success (e.g. housing, employment and substance abuse treatment) for those who have committed a criminal offense and shows some initial issues. One initial issue is the very low number of suicide victims being classified as homeless (0.8%). Additionally, Employment status shows a very high percentage of unknown cases (65.6%), which will likely render employment and homeless status as variables that is not able to be included in further analysis. Other notable variables include the participation in Mental Health or Substance abuse treatment that showed 43.6% of suicide victims being involved in treatment at the time of death. Showing higher values than that of the sample of all suicide victims, the sample of suicide victims with criminal offenses had 35.2% of suicide victims reported to have an alcohol use problem and 32.9% had a drug problem that was unrelated to alcohol. Prior to the incident of death, 25.3% of North Carolina suicide victims with criminal records had a history of attempting or exhibiting suicidal thoughts or behaviors. More strikingly, about 26.8% of North Carolina suicide victims disclosed thoughts of suicide related to the incident of suicide.
Table 2: Descriptive Statistics Suicides Of Criminal Offenders 2012-2013 (n=392)

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Initial Analysis

Chi-Square Analysis for All Suicides 2012-2013

In order to determine if there is a relationship between having a criminal offense and having a suicidal thought history or disclosing suicidal thoughts prior to injury a chi-square analysis was conducted. Table 3 shows the results of the chi-square test. Included in the analysis were control variables (sex, race, mental health) and criminal offender variables (criminal conviction, three or more criminal convictions, violent criminal convictions). Table 3 shows that there is a significant relationship between the independent variable of sex (X²=71.29, p<0.001). Of all suicides female victims are more likely to have a suicide thought history. 24.9% of females are reported to have a history of suicidal thoughts or attempts, which is significantly higher than males (11.2%).

Table 3 also shows that there is a relationship between mental health and suicidal thought history (X²=149.6, p<0.001). Individuals who have a mental health issue are more likely to have a history of suicide thoughts or attempts. Approximately 23.2% of individuals with a mental health issue are reported to have a history of suicidal thoughts or attempts compared to 6.1% reporting having no mental health issue. Additionally, there is a relationship between criminal conviction (X²=6.14, p=0.010), and the dependent variable of suicidal thought history. Suicide victims are more likely to have a suicidal thought history if they have a criminal conviction. Approximately 18.6% of individuals who have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 13.8% of suicide victims with no criminal conviction. This shows that victims having a suicidal thought history does not act independently of a suicide victim’s sex, age, mental health and criminal conviction.
Table 3: Chi-Square Statistic for All Suicide Victims 2012-2013

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<td>X² obtained</td>
<td>p</td>
</tr>
<tr>
<td>Sex (Male)</td>
<td>71.29***</td>
<td>0.000</td>
</tr>
<tr>
<td>Race (White)</td>
<td>4.78</td>
<td>0.029</td>
</tr>
<tr>
<td>Mental Health</td>
<td>149.6***</td>
<td>0.000</td>
</tr>
<tr>
<td>Criminal Conviction</td>
<td>6.14*</td>
<td>0.010</td>
</tr>
<tr>
<td>3+ Conviction</td>
<td>2.33</td>
<td>0.127</td>
</tr>
<tr>
<td>Violent Conviction</td>
<td>0.04</td>
<td>0.850</td>
</tr>
</tbody>
</table>

Table 3 also shows the results of the chi-square test observing the independent variables relationship to the dependent variable of disclosing suicidal thoughts of current suicide. Table 3 shows that there is a significant relationship between the independent variables of mental health ($X^2=27.09$, $p=0.000$) and the dependent variable of disclosing suicidal thoughts of current suicide. Suicide victims are more likely to disclose suicidal thoughts if they have a mental health issue. Approximately 31.1% of individuals with mental health issue were reported to disclose their thoughts of suicide prior to death compared to 22.0% of individuals with no mental health issue. Additionally there is a relationship between three or more criminal convictions ($X^2=14.66$, $p=0.000$) and the dependent variable of disclosing suicidal thoughts of current suicide. Suicide victims are more likely to disclose suicidal thoughts prior to death if they have three or more criminal convictions. Approximately 32.5% of individuals with three or more criminal convictions were reported to disclose their thoughts of suicide prior to death compared to 15.6% who did not have criminal convictions. This shows that victims having disclosed suicidal thoughts of current suicide does not act independently of a suicide victim’s mental health and having three or more criminal convictions.
Logistic Regression Analysis for All Suicides 2012-2013

Table 4 shows the results of the logistic regression analysis done in order to see if having a criminal offense or three or more criminal convictions, as well as sex, age and mental health are predictors of having a suicidal thought history or disclosing suicidal thoughts prior to injury. Because age middle was shown to have a significant relationship to suicidal thought history, it was chosen to represent age in logistic regression analysis. One demographic variable are statistically significant predictors of having a suicidal thought history, sex (OR=0.44, p<0.001). These results mean that a male is 0.44 times as likely to have a suicidal thought history. Additionally, having a mental health disorder is a significant predictor of suicidal thought history (OR=4.41, p<0.001). Therefore, an individual who is diagnosed with a mental health disorder is 4.41 times as likely to have a suicidal thought history.

The regression analysis shows that race is a significant predictor of having a suicidal thought history (OR=1.61, p<0.05). Whites are 1.61 times as likely to have a history of suicidal thoughts compared to other races. Additionally, table 4 shows that having a criminal conviction is a significant predictor of having a suicidal thought history (OR= 1.70, p<0.01). This means that an individual with a criminal conviction is 1.7 times as likely to have a suicidal thought history as compared to individuals with no criminal conviction. Additional analyses were conducted to determine predictive factors of suicidal thought history and suicidal thought disclosure of current suicide among criminal offenders.

Table 4 also shows the logistic regression analysis of the dependent variable of disclosing suicidal thoughts of current suicide. Findings show mental health status is a significant predictor of disclosing suicidal thoughts of current suicide (OR=1.64, p<0.001). This means that an
individual with a mental health disorder is 1.64 times as likely to disclose having suicidal thoughts of actual suicide.

Table 4: Logistic Regression: Predicting Suicidal Attempt History and Suicidal Thought Disclosure for All Suicides 2012-2013 (Odds Ratio and Standard Error)

<table>
<thead>
<tr>
<th></th>
<th>Suicidal Thought History</th>
<th>Disclosed Suicidal Thoughts of Current Suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>OR</td>
<td>SE</td>
</tr>
<tr>
<td>Sex (Male)\textsuperscript{a}</td>
<td>0.44***</td>
<td>0.13</td>
</tr>
<tr>
<td>Age</td>
<td>1.02***</td>
<td>0.00</td>
</tr>
<tr>
<td>Race (White)\textsuperscript{b}</td>
<td>1.61*</td>
<td>0.23</td>
</tr>
<tr>
<td>Mental Health\textsuperscript{c}</td>
<td>4.41***</td>
<td>0.14</td>
</tr>
<tr>
<td>Offender Status\textsuperscript{c}</td>
<td>1.70**</td>
<td>0.16</td>
</tr>
<tr>
<td>Constant</td>
<td>1.25</td>
<td></td>
</tr>
<tr>
<td>N</td>
<td>2554</td>
<td></td>
</tr>
<tr>
<td>R2</td>
<td>0.16</td>
<td></td>
</tr>
</tbody>
</table>

p<.05* p<.01** p<.001***
\textsuperscript{a} reference female  \textsuperscript{b} reference other race  \textsuperscript{c} reference no

Analysis of Offender Suicide Predictors

Chi-Square Analysis for Ex-Offender Suicide Victims 2012-2013

In order to determine if there is a relationship between barriers to reentry and social support and having a suicidal thought history or disclosing suicidal thoughts prior to injury of those with a criminal conviction a chi-square analysis was conducted. Table 5 shows the results of the chi-square test. Included in the analysis were control variables (sex male, race white, age, mental health), housing variables (homeless, family issues), employment variables (job problem, employment status), the treatment variable (treatment), substance abuse variables (alcohol problem, drug problem) and criminal offender variables (three or more criminal convictions, violent criminal convictions). Table 5 shows that there is a significant relationship between the
independent variables of sex ($X^2=3.9$, $p=0.048$). Females with a criminal conviction are more likely to have a history of suicidal thoughts or attempts than males with a criminal conviction. Approximately 29.5% of females who have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 17.2% of males.

Table 5 also shows that there is a significant relationship between race ($X^2=4.78$, $p=0.030$), and the dependent variable of suicidal thought history. Ex-offender suicide victims identified as white are more likely to have a suicidal thought history than other races. Approximately 20.4% of whites that have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 6.1% of other races. There is also a significant relationship between mental health ($X^2=17.66$, $p<0.001$) and the dependent variable of suicidal thought history. Ex-offender suicide victims with a mental health issue are more likely to have a history of suicidal thoughts or attempts. Approximately 27.3% of individuals with a mental health issue who have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 10.7% of individuals with no mental health issue. Additionally, there is a relationship between treatment ($X^2=17.87$, $p<0.001$) and the dependent variable of suicidal thought history. Ex-offender suicide victims in treatment with a criminal conviction are more likely to have a history of suicidal thoughts or attempts than individuals not in treatment. Approximately 28.1% of individuals in treatment who have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 11.3% of individuals not in treatment. This shows that among ex-offenders a victim having a suicidal thought history does not act independently of a suicide victim’s sex, age, race, mental health and substance abuse or mental health treatment.
Table 5: Chi-Square Statistic for Ex-Offender Suicide Victims 2012-2013

<table>
<thead>
<tr>
<th></th>
<th>Suicidal Thought History</th>
<th>Disclosed Suicidal Thoughts of Current Suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>X²obtained</td>
<td>p</td>
</tr>
<tr>
<td>Sex (Male)</td>
<td>3.9*</td>
<td>0.048</td>
</tr>
<tr>
<td>Race (White)</td>
<td>4.78*</td>
<td>0.03</td>
</tr>
<tr>
<td>Mental Health</td>
<td>17.66***</td>
<td>0.000</td>
</tr>
<tr>
<td>Family Issues</td>
<td>3.25</td>
<td>0.070</td>
</tr>
<tr>
<td>Treatment</td>
<td>17.87***</td>
<td>0.000</td>
</tr>
<tr>
<td>Drug Problem</td>
<td>0.00</td>
<td>0.990</td>
</tr>
<tr>
<td>Alcohol Problem</td>
<td>1.01</td>
<td>0.316</td>
</tr>
<tr>
<td>3+ Convictions</td>
<td>2.33</td>
<td>0.127</td>
</tr>
<tr>
<td>Violent Conviction</td>
<td>0.04</td>
<td>0.851</td>
</tr>
</tbody>
</table>

* Contains Cell with Expected Count <5

Table 5 also shows the results of the chi-square test observing the independent variables relationship to the dependent variable of disclosure of suicidal thoughts. Included in the analysis were control variables (sex, race white, age youth, age, mental health), housing variables (homeless, family issues), employment variables (job problem, employment status), the treatment variable (treatment), substance abuse variables (alcohol problem, drug problem) and criminal offender variables (three or more criminal convictions, violent criminal convictions). Table 5 shows that there is a significant relationship between the independent variables of mental health ($X^2=5.17$, $p=0.023$) and the dependent variable of disclosing suicidal thoughts of current suicide. Ex-offender suicide victims with a mental health issue are more likely to disclose suicidal thoughts prior to death. Approximately 30.5% of individuals with a mental health issue who have a criminal conviction are reported to have disclosed suicidal thoughts prior to death compared to 20.5% of individuals with no mental health issue.

Table 5 shows there is also a significant relationship between family issues ($X^2=10.67$, $p=0.001$) and the dependent variable of disclosing suicidal thoughts of current suicide. Suicide victims with a criminal conviction who have family issues are more likely to disclose suicidal
thoughts prior to death. Approximately 58.8% of ex-offenders with a family issue who have a
criminal conviction are reported to have disclosed suicidal thoughts prior to death compared to
23.7% of individuals with no family issue. Additionally there is a relationship between a suicide
victim having three or more criminal convictions ($X^2=14.66$, $p<0.001$) and the dependent
variable of disclosing suicidal thoughts of current suicide. Ex-offender suicide victims who have
three or more criminal convictions are more likely to disclose suicidal thoughts prior to death.
Approximately 32.6% of individuals who have three or more criminal convictions are reported to
have disclosed suicidal thoughts prior to death compared to 15.6% of individuals who do not
have three or more criminal convictions. This shows that victim having disclosed suicidal
thoughts of current suicide does not act independently of a suicide victim’s mental health, family
issues and having three or more criminal convictions.

Logistic Regression Analysis for Ex-Offender Suicide Victims 2012-2013

Table 6 shows the results of the logistic regression analysis the variables significant at the
bivariate level (i.e. mental health, family issues, treatment, having three or more convictions),
are predictors of having a suicidal thought history or disclosing suicidal thoughts prior to suicide
among ex-offenders. The analysis was done by starting with control variables (sex, age, race,
mental health) and adding in each other variable one at a time. Because age middle was shown to
have a significant relationship to suicidal thought history, it was chosen to represent age in
logistic regression analysis. This was done so in order to determine if the addition of the
independent variables shown to be related to the dependent variables would explain more of the
variance. Table 6 shows the final model (model 2) chosen for the dependent variable of suicidal
thought history. Within the final model, one control variable is shown to be a statistically
significant predictor of having a suicidal thought history, mental health ($OR=2.88$, $p<0.001$).
These results mean that an ex-offender with mental health issue is 2.88 times as likely to have a suicidal thought history.

Table 6: Logistic Regression: Predictors of Suicidal Attempt History and Suicidal Thought Disclosure of Suicide Victims (Ex-Offenders) 2012-2013 (Odds Ratio and Standard Error)

<table>
<thead>
<tr>
<th></th>
<th>Suicidal Thought History</th>
<th>Disclosed Suicidal Thoughts of Current Suicide</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Model 1</td>
<td>Model 2</td>
</tr>
<tr>
<td></td>
<td>OR</td>
<td>SE</td>
</tr>
<tr>
<td>Sex (Male)(^a)</td>
<td>0.51</td>
<td>0.37</td>
</tr>
<tr>
<td>Age</td>
<td>1.01</td>
<td>0.01</td>
</tr>
<tr>
<td>Race (White)(^b)</td>
<td>3.21</td>
<td>0.62</td>
</tr>
<tr>
<td>Mental Health(^c)</td>
<td>2.96***</td>
<td>0.28</td>
</tr>
<tr>
<td>Family Issues(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Treatment(^c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3+ Convictions(^c)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

|                        | Model 1                  | Model 2                  | Model 3                  | Model 4                  |
|                        | OR                       | SE    | OR    | SE    | OR    | SE    | OR    | SE    |
| Sex (Male)\(^a\)       | 1.39                     | 0.40  | 1.34  | 0.40  | 1.35  | 0.40  | 1.35  | 0.41  |
| Age                    | 1.01                     | 0.01  | 1.01  | 0.01  | 1.01  | 0.01  | 1.01  | 0.01  |
| Race (White)\(^b\)     | 0.95                     | 0.36  | 0.91  | 0.36  | 0.94  | 0.37  | 1.06  | 0.38  |
| Mental Health\(^c\)    | 1.77*                    | 0.24  | 1.70* | 0.24  | 0.58  | 0.78  | 0.56  | 0.79  |
| Family Issues\(^c\)    |                          |       | 4.11**| 0.52  | 3.87**| 0.52  | 5.62**| 0.55  |
| Treatment\(^c\)        |                          |       | 2.98  | 0.78  |       |       | 3.67  | 0.79  |
| 3+ Convictions\(^c\)   |                          |       |       |       |       |       | 3.21***| 0.28  |

\(^a\)reference female \(^b\)reference other race \(^c\)reference no

Table 6 also shows the logistic analysis of the dependent variable of disclosing suicidal thoughts of current suicide. Final model chosen for the dependent variable of disclosing suicidal thoughts of current suicide is model 4. This model was chosen as the final model because it explained the greatest amount of variance (14%). One variable that is significant predictor of
disclosing suicidal thoughts of current suicide is family issues (OR= 5.62, p<0.01). Findings show that an ex-offenders with family issues is 5.62 times as likely to disclose having suicidal thoughts of current suicide. Additionally, having three or more criminal convictions is a significant predictor of disclosing suicidal thoughts of current suicide (OR=3.21, p<0.001). Findings show that having an ex-offender with three or more convictions is 3.21 times as likely to disclose having suicidal thoughts of current suicide.

DISCUSSION

Findings

In order to determine if there is a relationship between having a criminal offense and having a suicidal thought history or disclosing suicidal thoughts prior to current injury, the results of both chi-square and logistic regression analysis offer important findings. The first important finding is the relationship between having a criminal conviction and having a suicidal thought history. Within North Carolina, those who have committed suicide and have a criminal offender history look different as a sample from the population of all suicides. There are an increased number of individuals suffering from some type of substance related issue, whether it be alcohol or drug related. Unemployment is also slightly higher for the sample of criminal offenders. These findings support the hypothesis (H₁) that suicide victims who are criminal offenders will differ from the population of all suicides.

More importantly, findings suggest that having a criminal offender status is a predictive factor of having a suicidal thought history. Individuals who have committed suicide and have a criminal record are more likely to have a history of suicidal thoughts. Therefore, the results of the analysis support hypothesis two: Suicide victims are more likely to have a history of suicidal
thoughts or attempts if they have a criminal conviction history. This aligns with prior research that suggests that ex-criminal offenders lack pro-social relationships, and that the more pro-social support systems that an individual has the less likely they are to commit suicide or exhibit suicidal behavior (Kleiman and Liu 2013). Interpersonal coping can allow for an individual to confide in another person and work difficult or stressful situations or events (Kleiman and Liu 2013). This may have an impact when negative life events occur, events such as criminal involvement, causing a loss of social pro-social relationships. Though findings support the relationship between criminal convictions, social support and suicide, when social support is examined in relationship to the barriers to offender reentry there are different findings.

When the social support variables that are related to offender reentry variables the findings are inconclusive because the data unable to be examined due to missing or unknown data. Therefore the original hypothesis: social support variables related to the barriers to offender reentry success (housing, employment, substance abuse treatment) will be related to a criminal offender’s suicidal thought history and disclosure of suicidal thoughts was not analyzed. The examined findings show that mental health and suicidal thought history are related, as well as family issues and three or more convicts. These findings stand in contrast to prior literature and theory that suggests that criminal offenders must participate in the creation of bonds to these legitimate sources through housing, employment and substance abuse treatment (Lowenkamp and Latessa 2005). These bonds must involve the offenders “hook” to society and prevent them from engaging in antisocial activity (Agnew et al 2014).

These findings also support the theoretical aim of policies such as behavioral interventions aimed at fostering social skills. Through the process of behavioral intervention, inmates learn the skills to conduct themselves in a way that will put themselves in the best
possible scenario. This is extremely important to ensure not only that an offender returning to society has proper employability skills, but also that the offender will be able to use them in order to be a productive member of an employment team. Implementing this type of training is on way the federal government seeks to train for success after incarceration. With at least one Cognitive Behavioral Program being required in each prison facility, there is a current effort to help develop skills that can help with not only the employment barrier, but also substance abuse and general behavioral conduct. This process will be successful at fostering social support.

When examining the social support variables represented by the barriers to reentry (housing, employment, substance abuse treatment) the only predictor of suicidal thought history is mental health status. Those who have a mental health issue are more likely to have a suicidal thought history. This is likely due to psychological factors that are related to thoughts of personal harm that may or may not be related to other social factors observed in this study. Only one variable chosen to represent social support was a predictor of suicidal thought disclosure and this was family issues. This is likely due to the fact that disclosing of suicidal thoughts would be related to the proximity of close relationships. This fits with prior research that suggests that returning offenders are often housed in an unfamiliar area, with very little social support that would likely be available in a home county with proximity to family and familiar community organizations (Witfree and Jiang 2010). The absence of social support has been identified as a factor that is shown to increase an ex-offender’s likelihood to reoffend (Gunnison and Helfgott 2011). Being subject to an unfamiliar environment may increase feelings of isolation and anxiety leading to the use of antisocial behaviors as a coping mechanism (Listwan et al 2006). Having family issues would likely influence whether an individual had an adequate avenue to disclose their thoughts or intentions of suicide.
Limitations

Though this study offered important findings there were a few limiting factors. First, the data on criminal offender history was limited. Because criminal history was searched through public records, data was only recorded on criminal convictions within the state of North Carolina. This may have led to some individuals with criminal records in other states or on the federal level to be overlooked. Therefore, the findings are only applicable to individuals within the state of North Carolina that have a criminal conviction from the state. Identification of criminal convictions from different state or federal agencies would likely have shown more individuals to have a criminal conviction.

Additionally, because criminal history was searched through public records through individual look up, the study was subject to only looking at individuals that committed suicide for the years 2012 and 2013 rather than all deaths. This was because of the large nature of the dataset for these years. In suicides alone there were 2554 cases that were looked up by hand. The length of time this took resulted in the decision to only look at cases of suicide rather than all deaths. This limited possible hypotheses related to predictors of committing suicide, rather than looking at suicidal thought history and disclosure of only those that have committed suicide.

Finally, a major limitation was the amount of missing or unknown data. Two of the variables chosen to represent the barriers to reentry success (homeless and employment) had high amounts of missing or unknown data. This led to their omission from analysis based on the fact that there was no statistical relationship between them and the dependent variables. This was due to the low numbers of responses that were included in analysis based on high amounts of missing and unknown data.
RECOMMENDATIONS

Based on some of the findings and limitations observed throughout the study, recommendations can be made to the Department of Health and Human Services, the Injury and Violence Prevention Branch and the North Carolina Violent Death Reporting System. An initial recommendation is the addressing of the high rates of unknown and missing data. Because the branch is subject to only record what is presented on the Law Enforcement and Medical Examiners Reports there is not much the department itself can change. One possible aide in this issue would be some type of addressing of the Law Enforcement and Medical Examiners agencies. The DHHS IVP Branch could issue a report and send it out to all participating agencies calling them to report as much information as possible, and how this is important for research and policy purposes. Importance can be stressed on the knowledge of the circumstances of deaths in the state of North Carolina and how this can be used to study deaths within the state. Also stressing that studying death within the state will help the participating agencies by informing policy that they will be affected by.

The Injury and Violence Prevention Branch may also benefit from adding additional variables to the North Carolina Violent Death Reporting System. The addition of such variables as criminal records may aid in the framing of death circumstances. Currently the NC-VDRS records data on recent legal problems or gang relationships, but it does not have data related to past records of criminal convictions or arrests. Inclusion of this would likely allow researchers to better examine circumstances related to death that are otherwise not visible through the data currently held by the NC-VDRS. For instance, when the sample used for this study was merged with the public offender records it was found that one individual was incarcerated at the time they committed suicide. Because of the nature of the NC-VDRS, there was little available data
related to the incarceration of this individual. It is likely that incarceration played a major role in
the suicide of this individual, but there was little that could be observed about the different
circumstances.

CONCLUSION

The purpose of this study was to identify how the barriers to offender reentry success,
social support and suicide within North Carolina are related. This study sought to test the
following three hypotheses: 1) The sample of suicide victims with a criminal conviction history
will look different than that of all suicides in North Carolina for 2012-2013, 2) Suicide victims
will be more likely to have a history of suicidal thoughts or attempts if they have a criminal
conviction history, 3) Social Support variables related to the barriers to offender reentry success
(housing, employment, substance abuse treatment) will be related to a criminal offender’s
suicidal thought history and disclosure of suicidal thoughts to another individual. Through data
collection processes and statistical analysis conclusions about the barriers to offender reentry
success, social support and suicide within North Carolina can be made. First, the sample of
suicide victims with a criminal conviction history look different than that of all suicides in North
Carolina for 2012-2013 in regards to sexual, substance abuse and mental health differences.
Second, suicide victims are more likely to have a history of suicidal thoughts or attempts if they
have a criminal conviction history. Finally, findings suggest that these reentry barriers are not
good predictors of suicidal thought history or suicidal thought disclosure.

Based on these findings the topic may greatly benefit from future research. Future
research centered on discovering why suicide victims with a criminal conviction look different
from those without criminal convictions may allow for a better understanding of this unique
group. This could likely inform policy and programming for ex-criminal offenders centered
around areas such as substance abuse and mental health. Future research may also be needed to explain why having a criminal conviction is related to suicidal thought history among suicide victims. This study was unable to prove the hypothesis that reentry barriers are good predictors of suicidal thought history or suicidal thought disclosure. Further research could shed light on alternative explanations as to the relationship between criminal convictions and suicidal thought history among suicide victims.

DISSEMINATION OF DATA

Findings from the study conducting were presented in a number of different settings. First, the findings were presented to the NCDHHS Injury and Violence Prevention Branch. The style of this presentation was brief lecture style, using visuals created depicting relevant information. These visuals were designed to emulate what the branch refers to as fact sheets. Fact sheets are brief, one and two page documents, which visually show the important findings of a study or analysis. The process of creating fact sheets was learned throughout the internship, as that is a major part of what the branch does with relevant data. The second setting will be the Continuing Education Department at Cape Fear Community College. The Continuing Education Department is responsible for programming correctional education courses in New Hanover County and Pender County Correctional Institutions. The Department of Public Safety is responsible for Corrections, Probation and Parole within the state of North Carolina. Presentation to CFCC Continuing Education and NCDPS will be beneficial because they are the entity that has the power to work directly with offenders and ex-offenders. Presentation to these agencies may have the most beneficial effect on possibly inciting some type of change to educational programming. The presentation was conducted in the same brief lecture style process, with the use of visual aids (see appendix).
REFERENCES


The North Carolina Violent Death Reporting System (NC-VDRS) is a CDC-funded statewide surveillance system that collects detailed information on deaths that occur in North Carolina resulting from violence: homicide, suicide, unintentional firearm deaths, legal intervention, and deaths for which intent could not be determined. NC-VDRS is a multi-source system that gathers information from death certificates, medical examiner reports, and law enforcement reports. The goal of this system is to aid researchers, legislators, and community interest groups in the development of public health prevention strategies to reduce violent deaths. NC-VDRS began collecting data in January 2004. This document summarizes deaths among North Carolina residents caused by suicide of individuals with current or previous criminal convictions for the years 2012-2013.

- Of the 2,554 suicide deaths in North Carolina in 2012-2013, 392 are individuals with present or past criminal convictions (15.3%).

- The majority of all suicide victims in North Carolina in 2012-2013 are male (75.4%), white (90.4%).

- The majority of suicides among criminal offenders in 2012-2013 are White (87.5%) and African American (11.0%).

- Approximately 31.1% of suicide with mental health issue were reported to disclose their thoughts of suicide prior to death compared to 22.0% who do not have a mental health issue.

- Female Suicide victims are more likely to have a suicide thought history. Approximately 24.9% of females are reported to have a history of suicidal thoughts or attempts, which is higher than the 11.2% of males.

- 57.1% of suicide victims in 2012-2013 have committed three or more criminal offenses.

- 42.9% of suicide victims in 2012-2013 have committed a violent criminal offense.

- Approximately 18.6% of individuals who have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 13.8% with no criminal conviction.
• Suicide victims who have three or more criminal convictions are more likely to disclose suicidal thoughts prior to death. Approximately 32.6% of individuals who have three or more criminal convictions are reported to have disclosed suicidal thoughts prior to death compared to 15.6%.

• 26.8% of North Carolina suicide decedents had disclosed their suicidal intention to someone else.

• Mental Health or Substance abuse treatment showed 43.6% of suicide victims with criminal convictions were involved in treatment at the time of death.

• Of suicide victims with criminal offenses had 35.2% reported to have an alcohol use problem compared to all suicide victims in 2012-2013 with 25.7% reported having an alcohol use problem.

• Of suicide victims with criminal offenses had 32.9% reported having a drug problem compared to all suicide victims in 2012-2013 with 15.4% reported having a drug problem.

• Approximately 20.4% of whites that have a criminal conviction are reported to have a history of suicidal thoughts or attempts compared to 6.1% of other races.

More information on suicide prevention efforts can be found at:

State Resource Partners
N.C. Division of Mental Health, Developmental Disabilities and Substance Abuse Services
www.ncdhs.gov/mhddas
North Carolina Office of the Chief Medical Examiner
www.ocme.unc.edu
The Triangle Coalition for Suicide Prevention
Contact: Phil Morse
www.trianglesuicideprevention.org
N.C. Injury and Violence Prevention's Youth Suicide Prevention Website
www.itsok2ask.com

National Resources
The Suicide Prevention Resource Center
www.sprc.org
The American Foundation for Suicide Prevention
www.afsp.org
The National Suicide Prevention Lifeline
for suicide crisis calls
1-800-273-8255

The North Carolina Violent Death Reporting System is supported by Cooperative Agreement SU17CE423088-10 from the Centers for Disease Control and Prevention (CDC).

N.C. Division of Public Health / www.publichealth.nc.gov / Injury Epidemiology & Surveillance Unit/ 919-707-5425
N.C. Violent Death Reporting System / 919-707-9402
State of North Carolina / Department of Health and Human Services / www.ncdhhs.gov
N.C. DHHS is an equal opportunity employer and provider. 2012 PROVISIONAL DATA 11/14

NORTH CAROLINA INJURY AND VIOLENCE PREVENTION www.injuryfreenc.ncdhhs.gov