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Predicting Criminal Desistance Among Adult Males

Between the Ages of 25 and 30 Years Old

by

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Approval Page

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Abstract

The purpose of the current study was to determine if criminal desistance could be predicted using data generated by the Oregon Department of Corrections (ODOC) related to prison programming, offender demographics, and certain other static and protective risk factors. The theoretical framework for this study centered on age-crime distribution, informal social control, and personal agency. Archived data from a sample size of 2,641 male subjects released from the ODOC between 2008 and 2010 who were between the ages of 25 and 30 years old was used in a forward stepwise regression analysis to determine the effect of selected variables on desistance. Regression analysis indicated significant results at the alpha level >.05 for prior revocations, prior ODOC incarcerations, race, crime severity, substance abuse need, number of custody cycles, disciplinary reports, length of incarceration, person-to-person crimes, earned time awarded, and release age. The study supported the hypothesis that desistance could be predicted using available offender information contained in the ODOC databases, and suggestions for future mixed method research to add context to the results of this study were presented. Lastly, suggestions for the application of the study's findings related to prison programing and community corrections were offered.

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Chapter 1

Introduction

Background

Shover & Thompson (1992) noted that desistance had been inferentially studied during the 1980s, and that the majority of research regarding the latter stages of criminal careers had been focused on recidivism, or the failure to desist. As a result, Shover & Thompson noted, there were few desistance related theories available to construct a model for conducting desistance research. Sampson & Laub (2003) observed that prior to the 1980s, criminology research tended to be focused on the factors that differentiated offenders from non-offenders and measured the correlates using secondary official data. Since 1992, however, the research database has expanded and the recent research has named several desistance theories to cover the many variables believed to have causal relationships with desistance.

As noted by Rocque (2014), the current explanations for desistance fall into three categories. Age and biological theories; psychological and psychosocial theories, and; social process theories. These three theoretical areas are examined more closely in Chapter Two of this study. For now, it will suffice to explain these three respectively as age based theories, personal action or agency theories, and social structure theories. Many researchers, including Rocque (2014) Sampson & Laub (1990, 1992, 2003, and 2005), Farrall & Calverley (2006), and Lloyd & Serin (2012), have emphasized the interrelated nature of these three theoretical areas and suggested that they should be considered together rather than separately when examining desistance. Although primarily concerned with the processes of maturation as they relate to desistance, the work of Rocque (2014) appeared to be the first comprehensive approach to

incorporating the various theories of desistance into a framework that reflected their interrelated nature. Rocque's model is explained in greater detail in Chapter Two.

Common to the majority of the research presented in this study is the role of age in criminal desistance. The work of Hirschi & Gottfredson (1983) related to the age distribution of crime and maturation, as outlined in greater detail below, seemed to establish a "law of desistance", which stated that most offenders will desist their criminal activity at a certain age, and the remaining offenders will decrease their criminal activity as they age beyond the critical point of desistance (approximately 18 to 20 years old). Much of the theoretical work since Hirschi & Gottfredson (1983) recognizes the age and distribution of crime curve (age-crime curve) and seeks to explain the causes of the decline in criminal activity associated with age. For example, Sampson & Laub (1992) posited that a change in criminal behavior was related to social structure and interaction during the offender's life-course and that these influences varied as offenders aged. Lloyd & Serin (2012) suggested that as offenders age, their criminal activity steadily declines and they commit less serious offenses.

Current literature suggests that most offenders desist from criminal behavior during late adolescence and early adulthood, but little is known about why this occurs (Laub & Sampson, 2003; Mulvey, Steinberg, Fagan, Cauffman, Piquero, Chassin, Knight, Brame, Schubert, Hecker, & Losoya, 2004; Schubert, Mulvey, Steinberg, Cauffman, Losoya, Hecker, Chassin, & Knight, 2004; Saunders, 2005).

Significantly, for the purposes of this study, Blonigen (2010) suggested that the research indicated the period of the life-course referred to as emerging adulthood is the age range of 18 to 25 year old. It is during this period that adolescents and young adults experience significant demographic and psychological changes, identity issues, and begin to experiment with social

roles. For the purposes of Blonigen's (2010) research, this age range offered an opportunity to explore the developmental context of desistance during a period of critical life changes. The focus of this study's research is the age group of 25 to 30 years old; the period when desistance, as observed through arrest records, appears to begin a more gradual decline. Piquero, Farrington, & Bloomstein (2003) noted that the Cambridge Study in Delinquent Development found that the mean age of desistance as measured by age at last arrest was 25.7 years-old.

According to Durose & Langan (2007) data collected from the National Judicial Reporting Program indicated that for the collection period 2004, at time of felony conviction the mean age of the offender was 32 years, and the age group 25 to 29 accounted for 40 percent of all convictions. For violent crimes the mean age was 31, and the 25 to 29 year-old age group accounted for 43 percent of all convictions. For weapons related offenses the mean age was 30 years, and this same age group accounted for 51 percent of all convictions.

A review of the age-crime curve and the data presented by Durose & Langan (2007) indicated that while offending seems to decline among offenders as they age, the level and severity of criminal activity among offenders who persist appears to escalate. The age group 25 to 29 years old certainly stands out as the highest risk age group for offending, especially in relation to violent crimes. Piquero, et al. (2003) commented that much of the work related to criminal career correlates has been conducted using juvenile offender data, and that future work should use data from the adult period and focus on how risk and protective factors might influence criminal careers among this population. Finally, Kazemian (2007) suggested that follow up periods for determining desistance should extend beyond age 20 as studies have shown that follow up to age 25 resulted in an average age at last arrest of 19.9 years old, whereas studies that extended the follow up to age 40 resulted in a mean age of last arrest at 31 years old.

Problem Statement

Much attention has been given to the qualitative research method for determining individual levels of desistance and determining which factors influence desistance in terms of agency and structure. While the qualitative work has been instrumental in gaining a deeper understanding of how certain variables influence desistance in terms of social structure and human agency, the studies lack the quantitative data and sufficient sample size to generalize to the overall correctional population. The exception might be the Pathways to Desistance Study (n.d.), but this study was limited to juvenile violent offenders. There remains a need for a consistent means of measuring desistance in order for criminal justice practitioners and the general public to better understand why offenders succeed or fail in their efforts to desist from crime.

Laub & Sampson (2003) suggested that understanding criminal desistance would lead to shaping more realistic strategies in reducing reoffending for those already involved in crime. This position expands the role of research to support early onset intervention strategies, as well as "the conceptualization and measurement of desistance" (p. 3). Recidivism alone fails to provide in-depth information related to the success of offenders, and measures only the presence of criminal behavior. Peters & Myrick (2011) suggested that it was necessary to develop measures that reflect not only crime free, but also productive pro-social lives among offenders in order to obtain a true understanding of the efficacy of programs offered within institutions. Additionally, according to Peters & Myrick (2011) a consistent means of defining, monitoring and measuring positive outcomes that resonates with the public and legislators is needed if agencies hope to fund effective programs. McNeill, Farrall, Lightowler, & Maruna (2012) stated that desistance, "…the long-term abstinence from criminal behavior among those for whom

offending has become a pattern of behavior, is something of an enigma" (p.3). Additionally, according to McNeill, et al. (2012) encouraging this outcome is a primary focus of the criminal justice system and in many cases is a key performance measure for criminal justice agencies, yet there exists some disagreement regarding definitions and measurements for desistance. Adding to this discussion, Kazemian (2007) commented on the lack of clarity regarding which variables predict spontaneous desistance, and which variables predict sustained and permanent desistance. McNeill, et al. (2012) also suggested that because most people eventually stop committing crimes, it is of obvious importance that the criminal justice system put some effort into understanding why.

Laub & Sampson (2003), proponents of the age graded informal social control theory of desistance, found through their research that there was only a weak correlation between the static factors of childhood circumstances and criminal desistance. Laub & Sampson (2003) suggested that although early childhood development, including social environmental factors, may contribute the early onset of delinquency; as an offender grows older these factors play little or no role in their eventual decisions to stop offending. Additionally, they suggested that future research should examine which demographics, if any, play a role in desistance. For example, they suggested examining the importance of marriage in relation to desistance, and what elements of marriage might enhance desistance. They commented that there existed significant research related to the reasons offenders join gangs, but little to explain why they eventually leave. Lastly, Laub & Sampson (2003) addressed the issue of alcohol abuse and criminal behavior and the need to examine more closely the relationship between social pressures and the use and abstinence from alcohol. This information, they argued, is pertinent to understanding

desistance. However, it may also serve as a partial foundation for establishing the prediction of desistance.

Bushway, Thornberry, & Krohn (2003) observed that desistance is the least studied dimension of the criminal career. Bushway, Piquero, Broidy, Cauffman, & Mazerolle (2001) noted that future research related to the process of desistance over time, which measures gradual reduction and/or more serious offending to less serious offending would be beneficial to understanding the desistance process. Significantly, Bushway, et al. (2001) demonstrated how this research might be carried out quantitatively in relation to desistance as a process of declining criminality, but did not follow up their model with any research studies. More importantly, perhaps, Bushway, et al. (2003) suggested that understanding the behavior related to why some offenders reduce their offending to a level of zero or near zero is the fundamental purpose of desistance research, and that understanding desistance might be important to developmental theories of crime and the formation of criminal justice policy.

As noted throughout this study, there is little research related to connecting desistance theory with variables that include data from existing and readily available correctional databases for the purpose of testing predictability for desistance. Additionally, while studies have focused on supporting theories related to human agency, social structure, and age, little work can be found which addresses the concern noted by Kazemian (2007). As noted above, The Pathways to Desistance study focused on desistance using a juvenile population until a maximum age of 25, or seven years after a juvenile arrest for the crime that resulted in the subject's inclusion in the study. As noted by Kazemian (2007), when the age range is extended beyond age 20 to age 40, the mean age of arrest climbs from 19.9 years old to 31 years old, respectively. In light of these data, the findings of Durose & Langan (2007) become more relevant to the need for better

understanding desistance among the age group 25 to 29 years old as they account for 43 percent of all violent crime convictions.

Dissertation Goal

This research study is designed to examine which characteristics best predict criminal desistance among individuals released from custody from Oregon Department of Corrections' (ODOC) prisons and correctional facilities for the purpose of informing the development a predictive tool for desistance. While this study will not attempt to create such a tool, it is hoped that the data collected will enable a serious discussion among decision-makers for the development of a tool possible. Additionally, the overall goal of the study is to add to the literature base regarding the predictive qualities of the variables to be studied. As detailed in Chapter Two, the variables were selected based upon their relevance to theoretical frameworks of desistance.

Research Question

As noted above, this research study is designed to examine which characteristics best predict criminal desistance among individuals released from custody from Oregon Department of Corrections' prisons and correctional facilities for the purpose of developing a predictive tool for desistance. Hence, the research question: Can criminal desistance be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors among male offenders ages 25 to 30 at time of release from custody.

Null Hypothesis:

Desistance cannot be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors among male offenders ages 25 to 30 at time of release from custody.

Hypothesis:

Desistance can be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors among male offenders ages 25 to 30 at time of exposure to risk.

Dependent Variable:

The dependent variable for this study is a binary variable that measures the outcome yes or no for the question; did the subject desist from crime for the three-year period being observed? Desistance is defined as the absence of official sanctions, arrests, parole violations, and/or convictions for any new offense.

Independent Variables:

Using a Forward Stepwise Regression Analysis, the following variables tested significant (alpha level >.05) in relation to desistance. They are not listed in order of significance, here.

- Prior Revocations
- Prior ODOC incarcerations
- Release Age
- Length of Incarceration
- Disciplinary Reports (Order
- Percentage of Earned Time earned
- Race

- Person-to-Person Crime
- Custody Number (number of times discharged from ODOC or other State parole)
- Original Crime Severity
- Substance Abuse Need

Relevance and Significance

Maruna, Immarigeon, & LeBel (2011) pointed out that the public's interest in reducing recidivism has long been an important issue for policy makers. They further stated that the issue has recently reached more urgent level of concern given the rising numbers of incarcerated individuals and the rising numbers of parolees being released to communities. Maruna, et al. (2011) estimated that approximately 1,600 individuals are paroled each day in the United States. Durose, Cooper, & Snyder (2014) reported that of the 404,638 offenders released from 30 state prisons in 2005, 67.8% were arrested within three years of release. Within five years of release, 76.6% had been arrested. Of the 30 states involved in the study, 23 reported a total of 49.7% of inmates who had either an arrest for a new crime or who violated the conditions of their parole were returned to prison, and 55.1% were returned to prison within five years. Of the inmates released from prison in Oregon during 2005 and tracked for three years, approximately 30% were returned to prison with new felony convictions (Oregon Department of Corrections, 2015). Oregon defines recidivism as any new felony conviction resulting in a return to the custody of the Department of Corrections. It does not include arrests and parole violations as noted in the Federal study cited above.

Unfortunately, according to Maruna, et al. (2011) these rising recidivism rates and parole failures have not resulted in any significant paradigm shifts away from the traditional supervision/intervention models, which rely primarily on sanctioning violations. Maruna, et al.

(2011) argued that a different approach was necessary. One that incorporated community based interventions and could draw upon the knowledge of "…theories for reintegration practice: namely, the literature concerning desistance from crime" (p. 9).

The primary issue being addressed in the current study is the identification of variables that might predict desistance in order to establish the framework for the development of a predictive tool. While some work has been completed in relating desistance variables to the likelihood of desistance (Lloyd & Serin, 2012), and some work has been completed developing frameworks for integrating theory into practical application for future study (Bushway, et al, 2001), the existing literature lacks quantitative studies using large numbers of adult subjects in correlating desistance variables to desistance and theory in a meaningful and practical manner. Previous research has been completed in the field of juvenile justice related to juvenile desistance, however. The Pathways to Desistance Study (n.d.) was designed to inform the ongoing debate regarding the treatment and processing of juvenile offenders. As previously noted, the study included juveniles who were at least 14, but under the age of 18 at the time of their committing offense. The study included predominantly violent serious offenders with the exception of a few misdemeanor property offenders, sexual offenders, and weapons offenders. The study followed offenders for seven years, thus placing the oldest offender at under 25 years old at the time of the study's termination. The current study begins with the upper limit age group studied in Pathways to Desistance desiring to expand upon that knowledge base by providing desistance data for the age group 25 to 30 years old.

Because the study of desistance offers a broad scope of applicability to the fields of corrections and community supervision, individuals and groups affected by the current study include offenders, community corrections administrators and officers, correctional

administrators, and other researchers. For offenders the findings of this research might be useful in informing future individual decision-making regarding the direction of programming for both incarcerated individuals and those who are on post-prison supervision in the State of Oregon. Community corrections staff might be affected in terms of offender monitoring and programming. Although dramatic change in supervision protocols is not anticipated, informed decision-making based on empirical findings related to desistance probability may better inform the practices related to existing models. Correctional administrators within the State of Oregon might be able to use the results of this research to evaluate the effectiveness and efficacy of prison programming in relation to desistance outcomes. Additionally, administrators might evaluate prison populations in relation to their situational relationship to programming that is shown to correlate with desistance. For, example, an individual who is married might better benefit from certain cognitive programming more than an individual who is single. Similarly, an individual with a history of prison behavioral problems might not be situated to take advantage of certain programming as an individual who is discipline free.

Currently, most criminal justice agencies measure recidivism to determine the effectiveness of interventions. According to Bushway, Brame, & Paternoster (2011) recidivism is primarily concerned with identifying offenders who have relapsed into crime. While these data are beneficial in reporting offender behavior in terms of failure and might result in identifying certain characteristics of failure, there is arguably more benefit in understanding the characteristics of desistance. Understanding the characteristics of desistance might prove useful in developing corrections and community supervision models that recognize social structure, personal agency, and age as essential elements in the successful reintegration of offenders to the community. Richards & Jones (2011) offered suggestions to the state of Iowa for reforming their

system of reintegration of prisoners. Their suggestions included increased communication between parole officers and employment agencies, families of offenders, and schools. Additionally, they recommended that the prisons prepare inmates for release by making available the means to apply for driver's licenses and social security cards, and legal advice if the inmate was facing civil or legal debt obligations. In short, the authors were arguing that the prison system should adopt a strategy that increased the level of both formal and informal social control presence on released inmates. Taxman, Young & Bryne (2011) noted that nearly 600,000 inmates are released to the community every year in the United States, and that this influx of offenders into communities has renewed interest in community justice models that incorporate social controls to assist in transition and reintegration.

External Validity and Generalization

Trochim & Donnelly (2008) defined external validity as "The degree to which the conclusions in [a] study would hold for other persons in other places and at other times" (p. 34). The generalization of the study is directly related to the external validity of the study, as generalization is defined as "The degree to which study conclusions are valid for members of the population not included in the study sample" (Trochim & Donnelly, 2008, p. 34). The sampling method employed was purposive among a homogeneous population. Purposive sampling is employed when the characteristics necessary for the study may not be present in a randomly selected sample. And a homogeneous sample is one that reflects subjects with closely related characteristics (Lund, 2012). The sampling method is more closely examined in Chapter 3. Generalization of the outcomes for the study, therefore, targeted similar prison populations that were 25 to 30 years old at time of exposure to risk, had been convicted of a felony offense, and were released from prison to parole or post-prison supervision.

The population sample for the study is restricted to male offenders ages 25 to 30. The sample included sex offenders, violent offenders, property offenders, and drug offenders.

The current study used a prison population with a sample size of 2,641 subjects, following their progress over a three-year period. The study examined variables in relation to their likelihood of limiting or enhancing desistance among the sample population, and categorized the significant variables into existing desistance theory where applicable. The existing literature contains no studies that have attempted to quantitatively examine secondary prison data and variables for the purpose of determining their significance related enhancing or limiting the probability of desistance.

Barriers and Issues

Measuring desistance presents unique challenges over the common practice of measuring recidivism. Measuring recidivism is a fairly straightforward process. In Oregon, for example, it is a matter of documenting encounters with the courts that result in convictions for felony offenses, which result in a return to ODOC custody. Regardless of the final definition of desistance, the concept is primarily concerned with the absence of criminal activity and the associated variables that may be considered influential.

A number of variables have been referenced in previous studies as related to desistance such as marriage, drug use, age, and race. Others, however, have not received the same level of examination and their relationships to desistance have not been fully explored. Examples of these include crime severity, length of custody, disciplinary reports while in custody, and percentage of earned time awarded. Establishing a relationship between these variables and desistance theory required discussion about the variable's elements related to agency, social control, and age. For example, percentage of earned time is generally associated with prison conduct and an

individual who has earned a significant reduction in sentence due to positive or prosocial behavior while incarcerated. This type of offender might be viewed as someone who has demonstrated personal agency for change. Likewise, a low number or absence of disciplinary reports while incarcerated might indicate a similar relationship to personal agency. Establishing relationships between length-of-custody and desistance theory proved more problematic as the outcome for the variable may have been influenced by other factors such as crime severity, or prison conduct that resulted in additional criminal charges and sentencing beyond the original conviction. Likewise, many of the variables that were included in the final Stepwise Regression Model were interrelated to others.

Rocque (2014) created an integrated model in support of the earlier work of Glueck & Glueck (1968) and Hirschi & Gottfredson (1983) related to age and criminal trajectories. His complaint appeared to be that neither the Gluecks nor Hirschi & Gottfredson offered suitable explanations regarding the causes of declining criminal behaviors as offenders got older. Rocque argued that there were several maturation domains that offered contributions to desistance as offenders aged and matured. For example, Rocque's model ties the cognitive transformation domain to openness to change, changes in attitudes toward social institutions, changes in views of the self, and changes in attitudes toward deviancy. This cognitive domain outlines the elements of personal agency for change by providing specific examples to be measured. Rocque did not, however, conduct any quantitative research into the relationships between these variables among a population of offenders. The current study worked toward establishing relationships between the significant variables and the domains outlined by Rocque. For example, changes in attitudes toward deviancy as included in the cognitive transformation

domain, might be expressed in low incidents of prison misconduct and related disciplinary reports.

Herschi's (1969) Control Theory asserted that individuals commit crime when they have weak or broken bonds to society. Conversely, individuals are less likely to commit crime when their societal bonds are strong. It is Herschi's Control Theory that set the foundation for the social structure position and influence on desistance. As defined by Farrall, Sharp, Hunter, & Caverly, (2011), structure refers to social institutions and systems such as marriage, job, legal system, etc. Farrall, et al. (2011) and Sampson & Laub (1992, 2003) further explained that certain formal and informal social structures exerted different types of control on offender behavior and varied according to age, location, and social norms. Sampson & Laub (1992) posited that social structures such as marriage and employment provided informal social controls through relationships established within those structures. For example, jobs might provide prosocial relationships with other workers and supervisors, while marriage might provide additional relationships with relatives and friends of the spouse. Additionally, social institutions such as churches may provide informal social control through relationships and activities that increased the offender's investment in prosocial behavior and community. Identifying and measuring informal social control related variables for the current study presented unique difficulties as the available variables for consideration did not provide in-depth information such as the positive or negative nature of a spousal relationship, the extent of a subject's involvement in a prison sanctioned prosocial program, or the level of satisfaction that a subject found in his employment. This type of qualitative data has been researched and discussing previous qualitative outcomes in relation to the quantitative outcomes of the current study might offer some level of explanation for the current study's outcomes.

Certain other variables such as age naturally fit into theoretic categories such as age and crime distribution as outlined by Hirschi & Gottfredson (1983), but required further analysis as the age group for the study appeared on the downward slope of the Age-crime curve.

Limitations and Delimitations

In terms of internal validity, this research is neither experimental nor quasi-experimental as there are no control groups, or specific treatments identified as having a causal relationship with desistance other than those that may be based on social control theory. Ensuring validity as defined by Huck (2012) requires ensuring that the measurement instruments used are measuring what they purport to measure. Depending upon the instruments used, construct validity, criterion validity, content validity, or a combination of validity measures may be used. Huck (2012) also noted that measures must be both reliable and valid. Reliability being the ability of the measuring instrument to consistently measure whatever characteristics or data is being measured.

External validity is problematic for this study as it is unique to Oregon's population of offenders ages 25 to 30 at time of exposure to risk. External validity threats are discussed in more detail in Chapter Three.

The current study uses the SAS Forward Stepwise Regression Analysis, which controls for all variables being tested. For example, when testing Race for significance, the program controls for Crime Severity, Priors, Revocations, Earned Time, etc. The study differentiated crime type only by drug offense, property, person-to-person, and crime severity rating. Sex offenders were not singled out as a class of offender, but the sex crimes appeared in the person-to-person crime category. In this regard, sex offenses were controlled during the regression analysis. This topic is more completely explored in the discussion chapter of this study.

As noted above, the study used statistical data to put the theoretical concepts of desistance into context with application to the development of tools to ascertain or predict the likelihood of desistance. For the theoretical concept of personal agency where the majority of the research conducted has been qualitative, the study relies on the work of Lloyd & Serin, (2012) and Rocque (2014) to relate the study's outcomes to agency and maturation.

Definition of Terms

Desistance:

Bottoms, et al. (2004) offered an extensive discussion related to defining desistance, which incorporated the works of Laub & Sampson (2001) noted above. In its purest form, desistance might be defined as the complete cessation of criminal activity as promoted by Laub & Sampson (2001). Bottoms et al. (2004) argued, however, that complete cessation of crime "…might suggest that – given the frailty of human nature – one could not be satisfied that an ex-offender had truly desisted until he/she had died, since the temptation to steal something from a shop…might arise even in old age" (p. 370). Bottoms, et al. (2004) suggested that a criminological definition for desistance might better capture desistance behaviors if it included significant crime free gaps into the definition. This definition requires a further definition of crime free gaps, but at least offers a reference point for beginning the discussion of defining desistance for this research study.

Primary Desistance

Primary desistance is defined as being any lull or crime free gap during the criminal career (Bottoms, et al., 2004). For the current study, primary desistance was targeted and defined as three-year gap in the criminal career.

Secondary Desistance

Secondary desistance is defined as a more complex concept than primary desistance involving the changing of the offender's identity to a non-offender or changed person. With this change in self comes long-term desistance (Bottoms, et al., 2004).

Spontaneous Desistance

This definition of desistance regards the rate of offending as a constant for an offender and when the offending stops or is reduced to zero, desistance has occurred. Spontaneous desistance does not recognize or attempt to explain the developmental or environmental processes of desistance (Bushway, et al., 2001).

Persistence:

Persistence as defined for the purposes of this study means the presence of criminal activity, or the opposite of desistance.

Summary

Current desistance theories fall into three categories. Age and biological theories; psychological and psychosocial theories, and; social process theories. Most researchers concur that these three theories should be considered as interactive with each other when explaining desistance from crime. For example, Sampson & Laub (1992) posited that a change in criminal behavior was related to social structure and interaction during the offender's life-course and that these influences varied as offenders aged. Blonigen (2010) further supported the interactive nature of desistance theories by suggesting that as offenders aged they experienced demographic and psychological changes, experienced identity issues and experimented with social roles.

There is a growing body of research related to criminal desistance, with the largest single study being the Pathways to Desistance Study (n.d.), which was limited to juvenile offenders.

Understanding the elements of long-term desistance from crime remains a mystery, however (McNeill, et al., 2012). Bushway (2002) suggested that understanding why criminals desist is the fundamental purpose of desistance research.

The current study seeks to add to the existing knowledge base with a quantitative examination of desistance predictors. More specifically, the study examined whether or not it was possible to predict desistance among offenders between the ages of 25 to 30 using data related to prison programing, offender demographics, and certain other static risk and protective factors.

Recidivism tracking for ODOC indicates that since 1987 recidivism among all offenders released to parole and/or post-prison supervision has experienced a downward trend from 36.3% in 1987 to 25.5% in 2010 as tracked after 36 months for new felony convictions. The same trend is evident for recidivism after 24 months steadily declining from 26.8% in 1987 to 21.5% in 2011. Recidivism during the first 12 months after release from prison also declined between 1987 and 2011 from 15.2% to 12%, but the 2011 rate represents a slight increase over the 9.4% of 2009 (Oregon Department of Corrections, 2013).

According to Durose, et al. (2014) approximately 50% of all offenders released from prison in their study were returned to prison within five years of release, and 67% had been rearrested. Adding to the desistance literature base quantitative information related to desistance prediction may be beneficial to understanding the characteristics of desistance and may prove useful in developing corrections and community supervision models that recognize social structure, personal agency, and age as essential elements in the successful reintegration of offenders to the community.

Measuring and predicting desistance has unique challenges. This may be especially true when using correctional data and relating the variables to existing desistance theory. Some models have been developed to aid in this research such as Lloyd & Serin's (2012) Personal Agency for Desistance Questionnaire, and Rocque's (2014) Cognitive Domains Model. While it was not feasible to use the Lloyd & Serin questionnaire, Roque's cognitive model was useful in aligning certain variables to theory such as age and agency as they are related to crime distribution as explained by Hirschi & Gottfredson (1983).

There are several limitations inherent to the current study. The sample is not limited to certain types of offenders as all offenders released during sample time frame were included regardless of offense type. The study controlled for certain crime types, however, through forward stepwise regression analysis. Other limitations and challenges included quantitatively measuring personal agency as this concept has been traditionally measured through qualitative instruments such as Lloyd & Serin's (2012) questionnaire and personal interviews (Maruna & Immarigeon, 2004).

Chapter 2

Literature Review

Introduction

It has been suggested that the first true work related to understanding the termination of criminal careers was the research conducted by Glueck & Glueck (1968) between the1930s and 1960s (Farrall & Calverley, 2006). The work of the Gluecks, referenced in several areas below, seemed to establish the foundation for much of the current research related to determining causal relationships to desistance. Likewise, Merton's classic 1938 *Social Structure and Anomie* outlined a theory commonly referred to as strain theory, which seeks to explain crime propensity through social and economic deprivation. Much of Merton's discussion regarding the breakdown of social control as a consequence of social structure and opportunity has found its way into modern research discussions and theory. His influence is perhaps most evident in discussions and theory related to social structure and desistance. While many modern researchers such as Sampson & Laub (1992) have sought to broaden the structure discussion by researching more deeply the causal relationships between marriage, employment, and military service to desistance, the fundamental thesis of Merton that social control, not the biological nature of humans, continues to be evident in the social structure discussion of desistance.

Sampson & Laub are perhaps the most prolific researchers of desistance and the authors of the theory of age graded informal social control. Reading their research findings and discussions is informative in that their work has evolved over time to incorporate into the desistance discussion the theories related to human agency and agency's interaction with social environment over the life-course of offenders.

Throughout the literature, however, there appears to be a conspicuous absence of research related to desistance measured in relation to operationalized theoretical concepts among offenders released from prison. Recidivism, the opposite of desistance, has certainly been measured and is a primary reporting measure for most correctional organizations when determining effectiveness of correctional systems. As noted above, the current study is intended identify variables related to enhancing or limiting desistance in order to begin the conversation related to predicting desistance from crime.

Defining Desistance

Maruna & Immarigeon (2004) noted that desistance and recidivism are related but they measure different phenomena. Desistance is concerned with the offender stopping his/her criminal activities, and recidivism is concerned with offenders renewing their criminal activity. It seems appropriate that the study of recidivism among a sample group includes the study of desistance within the same group. Measuring recidivism allows for the identification and exclusion of the portion of the population that fails (recidivates), and inclusion of the portion of the population that does not fail. The latter group being the one of research interest.

Bottoms, Shapland, Costello, Holmes, & Muir (2004) outlined some primary considerations in defining the term desistance. First is the common definition, which refers to the cessation of criminal activity. Bottoms, et al. (2004) suggested that the use of this restrictive definition might be unrealistic given the frailty of human nature. In other words, is it realistic to expect a criminal to completely desist from all criminal activity over the course of the lifetime? The definition taken from the Oxford English Dictionary for desist, is to cease or forebear, with a related sub-sense to refrain, abstain (Bottoms, et al., 2004). Accordingly, Bottoms, et al. suggested that including significant crime free periods in the definition of desistance would be

consistent with the third definition of refraining or abstaining from criminal behavior rather than requiring complete desistance as defined in the traditional sense.

A second consideration is related to the concepts of primary and secondary desistance. Primary desistance is defined as being any lull or crime free gap during the criminal career, and secondary desistance being a more complex concept involving the changing of the offender's identity to a non-offender or changed person (Bottoms, et al., 2004). Bottoms, et al. concluded that it would be expedient to focus on the absence of criminal behavior, and to include significant lulls and/or crime-free periods in the study of desistance. Lloyd & Serin (2012) explained that there is commonly an increased time lag observed between offenses as offenders age regardless of the previous crime frequency, which suggests that criminal activity begins to slow before completely stopping.

Maruna & Immarigeon (2001) elaborated on the Sampson & Laub (1992) definition of desistance as a process that supports the cessation of offending. Desistance, according to this model, is a process that begins before the actual non-offending and continues long after the offending has stopped. LeBlanc & Loeber (1998) outlined four stages of desistance beginning with deceleration or a reduction in offending. The second stage is de-escalation, which involves the commission of less serious offenses. Third, the offender reaches a ceiling period during which the offender remains at a level of offending without evidence of escalation into more serious types of offending. Lastly, the offender may specialize in the type of offending. "In brief, any diminution in the level, seriousness or heterogeneity of criminal activity may mark a step in the process that will lead to the cessation of criminality" (Maruna & Immarigeon, 2001, p. 18).

Maruna & Immarigeon (2004) pointed out, however, that both the Laub & Sampson (2001) and LeBlanc & Loeber (1998) working definitions of desistance confound the basic

definition given by most researchers. That is, desistance is a "continued state of non-offending" (p. 18). This outlook toward defining desistance necessarily returns to the primary and secondary definitions of desistance to establish a working definition. As pointed out by Maruna & Immarigeon (2004) and Bottoms, et al. (2004) primary desistance is any lull or crime free gap during the criminal career, and secondary desistance is the state of permanent non-offending and the changed person of the offender. Bottoms, et al. advocated for the inclusion of crime free periods in studying desistance, and Maruna & Immarigeon (2004) reiterate the importance of inclusion by underscoring the generally held belief that crime free periods are present in offenders who eventually desist. Farrington (2007) defined desistance as the observed termination of criminal activity, with the theoretical construct referring to decreases in the frequency, variety, or seriousness of offending. Additionally, Farrington's definition encompassed both primary and secondary elements of desistance.

Spontaneous desistance, sometimes referred to as spontaneous recovery, is described by Maruna & Immarigeon (2004) as a process of desistance that is achieved without intervention. Spontaneous desistance is most commonly observed in adolescent offenders who "grow out" of their criminal activity. Maruna (2001) stated that proponents of spontaneous desistance believe that changes occur in offenders regardless of programming or interventions and that the effect of age on criminal behavior is universal to all offenders.

For the purposes of measuring desistance in this study, the definition provided by Bottoms, et al. (2004) of primary desistance seems most appropriate because the study identified variables that indicated significance in predicting desistance as evidenced by a crime free period of three years.

Theoretical Framework

Since the 1970s, many theories have been presented to explain desistance from crime. The theoretical framework outlined below covers those theories that have demonstrated efficacy as evidenced by their impact on subsequent studies and attempts to either support or debunk their central arguments. Some of the early theories, such as Hirschi & Gottfredson's (1983) Age Distribution of Crime and Maturation, appeared to have spawned additional research aimed at supporting their General Theory of Crime. Likewise, Sampson & Laub (1992) sparked additional research related to desistance with their Age Graded Informal Social Control Theory. Certainly, other theories have had similar impact on the study of desistance, but the point here is that these studies have led to the development of deeper study into desistance and resulted in numerous theses of desistance including closer examination of human agency and formal and informal social structures in the discussion of causation.

Age Distribution of Crime and Maturation

In their important work on the relationship between age and crime, Hirschi & Gottfredson (1983) proposed theses that stated:

> …the age distribution of crime is invariant across social and cultural conditions…theories of crime that do not explicitly attend to age have no logical or empirical obligation to do so and should not be judged by their apparent ability or inability to account for age effect…the age distribution of crime cannot be accounted for by any variable or combination of variables currently available to criminology…explanations focusing explicitly on the age effect must be compatible with an apparently direct effect of age on crime…the conceptual apparatus that has grown up around the age effect is largely redundant or misleading…identifications of the causes of crime at any age may suffice to

> identify them at older ages as well; if so, cohort or other longitudinal designs are not necessary for the proper study of crime causation. (p. 554)

Hirschi & Gottfredson argued that while arrest rates had increased between 1965 and 1976, the same age-crime curve could be observed with the highest rates of arrests occurring within the 15 to 17 year-old age group. Additionally, Hirschi & Gottfredson (1983) pointed to data that indicated that the age distribution for crime (see Figure 1) was consistent across national studies. For example, the age distribution for Argentina in 1960 was almost identical to the age crime distribution in the United States, Wales, and England for the same period. Hirschi & Gottfredson asserted that sex and race were invariant to age crime distribution, as well. Conviction ratios for males and females appeared to be virtually the same as did the rate of offending across age groups peaking at about 17 years of age and sharply declining thereafter. They further suggested that while the rates of offending were higher for Black offenders than it was for White offenders, both races peak offending occurred between 16 and 17 years old and sharply declined afterward. In fact, those authors argued that this same trend held true for all comparison groups regardless of crime type or age at onset.

Additionally, Hirschi & Gottfredson (1983) suggested that current criminological theories were inadequate to explain the age distribution of crime, and specifically cited the weaknesses of social control theory in answering the questions related to the repair of social bonds in relation to desistance. Hirschi & Gottfredson stated that while social control theory may adequately address the causes of criminal activity, no evidence had been presented to explain what was involved in the repair of social bonds. On the other hand, they supported the work of Greenberg (1979) who posited that strain and control partially explained the age distribution of crime. Strain is seen through adolescent deprivation of material goods and status anxiety and control is factored

through criminal penalties and increased benefits of conformity as offenders aged. Here again, however, Hirschi & Gottfredson asserted that the evidence presented was inadequate to account for the persistent age-crime relationships.

Figure 1 Age Distribution of Crime Curve

This graph of the Age-Crime Curve was copied from Blonigen (2010), but first appeared in Blumenstein, Cohen, & Farrington (1998).

Addressing age of desistance, Hirschi & Gottfredson (1983) used the primary definition of desistance of a period of time without a criminal act constituting the end of the criminal career. They posited that the age of desistance varies considerably and the most robust predictors of extended criminal careers have been age of onset and the seriousness of crimes committed. Hirschi & Gottfredson (1983) continued that since it has been well established that these predictors define the length of criminal careers they offer nothing new to the discussion of

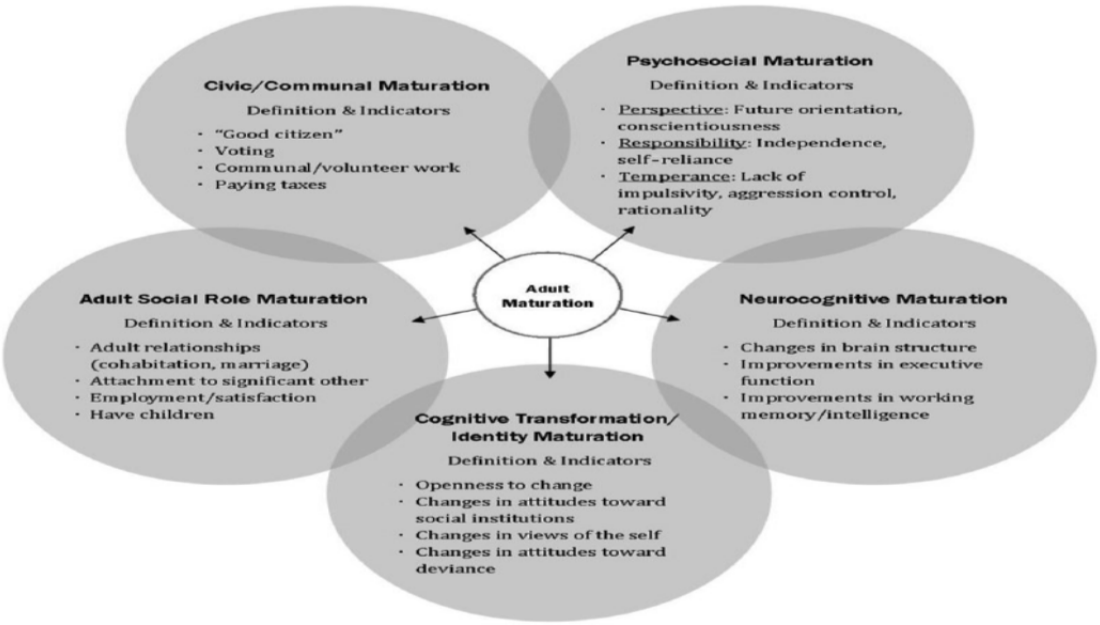
desistance or the age distribution of crime. Furthermore, they pointed out that no study to date had revealed any offender groups that demonstrated an early onset relationship to early desistance. Rocque (2014) cited Glueck & Glueck (1968), however, who suggested that while maturation was normal for most people, mental health, social, and psychological considerations might retard maturation among some offenders. For Glueck & Glueck (1968) the ages of 25 to 35 were the critical ages for maturation and desistance. For those who did not mature by this age, career criminality was the likely result.

Importantly, Hirschi & Gottfredson (1983) pointed out that while they argued that there was no current mechanism to account for the age-crime relationship, they were not suggesting that such a mechanism did not exist. Hirschi & Gottfredson were primarily concerned with causal relationships relative to criminal behavior, their theses regarding the invariant nature of the age distribution of crime are controversial as they imply that maturational reform is a universal occurrence and that maturation occurs at the same rate regardless of, or in spite of social factors (Rocque, 2014). Rocque (2014) explored the relationship between the age distribution of crime and maturation as defined as a multifaceted concept, which included biological, psychological, and sociological factors.

Rocque (2014) stated that the current explanations of desistance included the biological theories such as the pure age-based theories and biological perspectives related to neurological and cognitive development; the psychological and psychosocial theories, which included cognitive transformation, agency and identity theories, and psychosocial personality theories, and; sociological theories including civil engagement and transition to adulthood, social relationship and social role theories.

Rocque (2014) offered a theoretical concept of adult maturation and its interactions with the domains outlined below (Figure 2). Rocque notes that this perspective requires empirical analyses to determine if changes in the various domains over time are consistent with current life-course perspectives, and whether they are interactive or additive in their contribution to desistance; interactive meaning that the domains work together to contribute to an overall result of desistance, and additive meaning that the domains each offer an independent contribution to desistance (Rocque, 2014).

Figure 2 Maturation Domains and Relationships



Rocque, 2014

Finally, Rocque (2014) stated that while Glueck & Glueck (1968) were clear that their definition of maturation was not confined to aging, they were unsuccessful in offering an operational definition that was useful for research and subsequently the concept of maturation as

an element of desistance lost favor and has received little attention. By viewing maturation in relation to multiple domains, Rocque argued that researchers might be able to view different explanations as part of the same framework and present a more comprehensive view of desistance rather than the multiple views that existed.

The work of Rocque (2014) was useful as a step toward operationalizing the concept of maturation from both quantitative and qualitative research perspectives. For example, instruments such as the Personality Assessment Inventory (PAI) might be used to measure and quantify psychosocial maturation. The elements of adult social role maturation as outlined above, might be incorporated into both quantitative and qualitative research methods by using open-ended questionnaires or Likert scale questionnaires to measure employment satisfaction or attachment to significant others.

Age Graded Informal Social Control

Sampson & Laub (1992) suggested that change in criminal behavior during the life course was directly related to social structure and interaction. This position on social and structural influences on adult criminal behavior was in opposition to popular theories at the time such as the Herschi & Gottfredson's (1983) Age and Distribution of Crime, which posited that the age-crime curve was invariant across variables of time, demographics, and crime types. Sampson & Laub (1992) noted that Herschi & Gottfredson believed that social factors could not explain the age effect on crime and that the causes of crime that were established in early childhood remained constant throughout the life course and accounted for the continuity of offending behavior into adulthood. Sampson & Laub (1992) began longitudinally studying early antisocial behavior in children, adolescent delinquency, and adult crime and integrating their findings with theory and research on the life course. More precisely, Sampson & Laub (1992)

researched the continuity between life course criminal activity and antisocial behavior to events during the life course such as occupation, marriage, military service, and other social control opportunity structures. Additionally, Sampson & Laub suggested that criminologists had paid little attention to the social transition processes involved in the desistance of crime in early adulthood and subsequent aging. They stated, therefore, "…the life course is concerned not only with early childhood experiences but also with salient events and socialization in adulthood" (p. 64).

Consequently, Sampson & Laub (1992) emphasized the need to include in their research any links between the age-crime curve and the life course perspective. As explained by Sampson & Laub the life course perspective refers to the stages of aging and the various social and economic options that influence the decision-making processes during transitions and turning points throughout the life course. Additionally, Sampson & Laub suggested that there were culturally defined age-graded roles that interact with social transitions. As individuals move along the life course trajectory the timing and ordering of certain transition events and each individual's adaptation to transitions might impact both trajectory and social development. Sampson & Laub (1992) suggested that social institutions such as school, military, and marriage might have the ability to alter life course trajectories, especially in terms of criminal trajectories. More specifically, Sampson & Laub (2005) found that social institutions such as those noted above allowed offenders to act to reorder the short-term benefits of crime. This situational short-term commitment, with time (age), evolved into a long-term commitment to change. Barry (2013) suggested that commitments to family, as well as the threat of losing those close relationships were primary considerations for desistance. Barry (2013) implied that Sampson & Laub (1992) were promoting a desistance by default theory because it relied heavily on the

offender engaging in social structures without a commitment to change beforehand. Barry (2013) supported the social control theory, however, she noted that roles of offenders change with age in relation to social interactions such as parenting, caring for the ill, and mentoring young offenders.

Sampson & Laub (1992) noted that while adult criminal behavior is generally preceded by juvenile antisocial behavior, not all antisocial juveniles become adult criminals. Sampson & Laub theorized that informal social control influenced adult criminal behavior over the life course despite juvenile antisocial behavior. Citing social control theory, which states that crime and deviance are the result of weak or broken social bonds, Sampson & Laub (1992) focused on the quality and strength of adult roles related to the demands of marriage, higher education, full-time employment, and military service during the transition to adulthood. Sampson & Laub (1992) used the Glueck & Glueck (1968) cohort of 1,000 subjects ages 14 to 32 (500 delinquents, 500 controls matched for age, ethnicity, IQ, and socio-economic status) and found that "…job stability and marital attachment in adulthood were significantly related to changes in adult crime – the stronger the adult ties to work and family, the less for crime and deviance among both delinquents and controls" (Sampson & Laub, 1992, p. 74). Cid & Marti (2012) appeared to support the informal social control theory in that they argued that valued relationships with new partners who disapproved of antisocial behavior might explain the motivation behind change. Cid & Marti (2012) made a similar argument for relationships that offenders reestablish after incarceration, especially with family members who offer support to the offender in terms of desistance behavior.

It is important to note that Sampson & Laub (1992) did not discount the fundamental premise of the age-crime curve that continuity of criminal behavior existed. Sampson & Laub

disagreed that early antisocial behavior as a cause for delinquent and criminal behavior was invariant across time and that interactions with social institutions had no significant impact on criminal behavior in the adult years.

Sampson & Laub (2005) elaborated on their earlier thesis of life-course theory "…as a constant interaction between individuals and their environment, coupled with random developmental noise and a purposeful human agency that they distinguish from rational choice" (p. 12). This perspective is in contrast to developmental theory and the work of Moffitt (1993), which attributed the causes of life-course persistent criminality and adolescent limited offending to childhood events and environment. Sampson & Laub (2005) emphasized a desistance pathway that included human agency, structural constraints, and the individual in a continuous social reproduction process.

Sampson & Laub (2005), drawing from their previous work using the Glueck & Glueck (1968) cohorts, divided the group into two dimensions. The first included those who experienced high residential mobility, parental emotional instability, and father/son hostility. The second group included low supervision, poverty, large family size, and harsh discipline. Subjects were selected from the upper half of each distribution of the individual-level child-risk score. The results indicated that the rate of offending for the high risk group were predictably higher than for the low risk group until about age 15 when offending for both groups dropped off at approximately the same rate. In later life, measured to age 70, the low risk group offended at a higher rate than the high-risk group. Sampson & Laub concluded that desistance and aging out of crime reflected a general process for all offenders. Functionally, Sampson & Laub (2005) explained that because crime declined for all offenders throughout the life-course, the developmental theories promoting typologies of offenders did not adequately account for the

aggregate age and distribution crime findings. As noted above, regardless of childhood risk factors, the Glueck & Glueck group desisted at a rate that implied a general process of desistance rather than one associated with the risk factors associated with developmental theories.

Farrall, Bottoms, & Shapland (2010) noted the work of Sampson & Laub in linking offender lifestyle changes to criminal desistance. Specifically, Farrall, et al. (2010) pointed to prosocial informal social control attachments of employment, stable partners, and prosocial communities. How offenders interact with these structural elements of desistance, according to Farrall, et al. (2010), is linked to the individual's personal agency. Agency was defined by the offender's decision to move away from criminal activity, or to at least try.

Agency

The aforementioned authors established a foundation for the further study of desistance and sparked debate regarding the various theories put forward by these researchers. For example, Maruna (2001) and Giordano, Cernkovich, & Rudolph (2002) expanded the research into desistance to include cognitive level changes in offender beliefs about crime and its impact on their futures in attempts to add texture to theories such as age graded informal social control and age distribution of crime and maturation. Indeed, Sampson & Laub's (2005) work evolved over time as evidenced by their recognition and inclusion of human agency as an active and purposeful element of desistance.

Paternoster & Bushway (2009) examined an identity theory of the desistance from crime. Within their framework offenders had several views of themselves; the working self (or present self) as a criminal with associated criminal networks and personal preferences consistent with that image; the future or possible self, which envisioned the positive wishes and hopes of a life without criminal activity; and the feared self, or the anxiety of not achieving the possible self and

the fear of what they might become. In the rational choice theory tradition, Paternoster & Bushway (2009) posited that individuals were likely to commit to their present self until the cost of the identity outweighed the benefits. The initial event that precipitated the cost benefit analysis was termed the crystallization of discontent, or the linking together of life's failures to realize that one might become the feared self. In other words, individuals are able to link past failures with the potential for future failures. This realization, according to Paternoster & Bushway, was necessary for the offender to initially move toward the possible self or future self. It is this decision to act upon the discontent of their failures by moving to improve their future that is referred to as agency. "Human agency, we believe, is expressed through this act of intentional self-change" (Paternoster & Bushway, 2010, p. 1106).

Healy (2013) described agency as the "…capacity to exercise will during interactions with the social world" (p. 558). In short, offenders must develop a sense that they are at cause for their life's events and outcomes. According to Vaske et al. (2011) neuroscientists conceptualized agency as recognizing that one's actions are self-generated. Criminologists and psychologists, on the other hand, refer to agency as a person's ability "…to influence intentionally one's functioning and life circumstances" (p. 95). This latter conceptualization is more relevant to the current study as it encompasses functioning and life circumstances rather than recognizing self-generated acts alone. Lloyd & Serin (2012) defined a sense of agency as a desire to change when the necessary resources were readily available to assist, and agency as the active pursuit of the necessary resources needed for change whether they were readily available or not. Agency, therefore, is situated within the structural context of the offender's social world and acts as an internal desire for change when the offender is faced with contextual factors. The offender is choosing the option that results in the desired behavioral outcome (Lloyd & Serin, 2012). King

(2012) noted that the interaction between structure and agency allows for individuals to react to structural change with "transformational power" (p.318) that indicates the individual is exercising some level of control over his/her direction in life. In other words, structural change enables agency to be exerted.

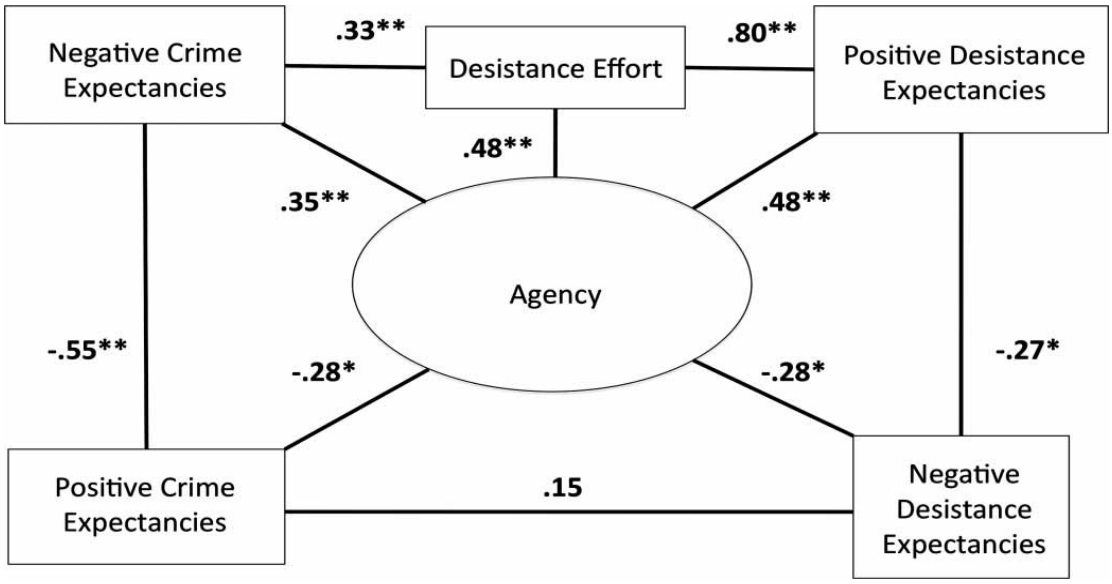
Lloyd & Serin (2012) recognized that criminal careers decline steadily with offender age, and stated that with each new conviction, there was an increased time lag before the next conviction. This suggested that offenders slow down with age and commit less serious crimes, and that the desistance pathway is marked by steady reduction in criminal activity, which then leads to complete desistance. Lloyd & Serin (2012) seemed to agree with Sampson & Laub (2005) in that they conceptualized desistance as a transition process that occurred progressively rather than spontaneously. Additionally, Lloyd & Serin stated that although there was non-experimental research related to how agency interacted with structure to achieve desistance, no empirical research had been conducted to measure the cognitive variables that many believed to play a major role in the individual's decision-making processes, which they believed was necessary to understand the roles of internal and external processes in desistance.

Lloyd & Serin (2012) developed a self-report instrument to measure beliefs regarding individual intention to desist from crime. The study used participants from a Canadian minimum-security prison and did not exclude subjects based on criminal history, age, or risk level in order to get a more heterogeneous sample (N = 142). Offenders ranged in age from 20 to 71 years with a mean age of 41.4 (SD = 12.2). The sample's racial makeup was Caucasian (71.8%), Aboriginal (8.5%), Black (6.3%), Asian (2.8%), Latino (0.7%), multi-racial or other (9.8%). Participants reported that they were single, never married (41.8%), divorced (32.6%), or widowed (4.3%), and 21.3% reported that they were either married or in a common-law relationship. Of the

sample, 49.3% were incarcerated for non-sexual violent offenses, 31.9% for non-violent offenses, and 18.8% for sexual assault. Additionally, 53.5% of the sample had prior provincial sentences of less than two years, and 77.5% had no prior federal sentences of two years or greater.

The study utilized the Personal Agency for Desistance Questionnaire to measure perceived sense of agency. Internal consistency as measured by Cronbach's alpha was good at $\alpha = 0.77$. To test concurrent validity the researchers also tested subjects using the Hope Scale (Snyder, 1991), and the State Hope Scale (Snyder, 1996). Internal consistency for these two scales were measured at $\alpha = .81$ and $\alpha = .82$, respectively (Lloyd & Serin, 2012). Lloyd & Serin also developed the Personal Outcome Expectancies for Crime Scale to measure perceived costs and benefits related to criminal activity, which consisted of two subscales to measure positive and negative expectations ($\alpha = 0.90$ for negative scale, and $\alpha = 0.89$ for positive). The Personal Outcome Expectancies for Desistance Scale was also developed by Lloyd & Serin (2012) and measured perceived benefits and costs related to desistance ($\alpha = 0.83$). The Measures of Criminal Attitudes and Associates (Mills & Kroner, 2001) was used to measure the subjects' endorsement of antisocial attitudes ($\alpha = 0.91$). The Statistical Information on Recidivism Scale (Nuffield, 1989) measures recidivism risk based on 15 static factors and was used to determine the probability of offender recidivism within three years of release ($\alpha = 0.77$, AUC = 0.75). Finally, demographic information including age, ethnicity, marital status, offense type, and participation in institutional programming was entered (Lloyd & Serin, 2012).

Figure 3 Conceptual Model of Desistance Beliefs



(Lloyd & Serin (2012)

Figure 3 illustrates that Lloyd & Serin (2012) found that in relation to agency, there was a negative correlation between positive crime expectancies and agency (r = -.28, p = < 0.01); a positive correlation between agency and negative crime expectancies (r = .35, p = < 0.001); a positive correlation between negative crime expectancies and desistance effort (r = .33, p = < 0.001); a positive correlation between agency and desistance effort (r = .48, p = < 0.001); a positive correlation between desistance effort and positive desistance expectancies (r = .80, p = < 0.001); a negative correlation between negative desistance expectancies and agency (r = -.28, p = < 0.01); and a positive correlation between positive crime expectancies and negative desistance expectancies (r = .15). Lloyd & Serin (2012) concluded that these data reflected the cognitive support of desistance agency and desistance outcome expectancies in achieving desistance. Additionally, the correlations suggested that offenders who endorsed a belief in their ability to desist also had positive beliefs about the benefits of desistance. Conversely, Lloyd & Serin

pointed out those offenders who did not have these cognitive supports endorsed crime and were at risk for future criminal activity, and those who endorsed negative desistance outcome expectancies believed desistance to be harmful.

Lloyd & Serin (2012) also found that endorsement of positive outcome expectancies for crime correlated with greater risk to reoffend as measured by the static risk tool (r = -0.20, p = 0.03, n = 119). There were no other significant correlations between static risk to reoffend and other expectancy measures, leading Lloyd & Serin to suggest that static risk factors may be statistically independent of beliefs about desistance; however, lower risk to reoffend was significantly correlated to higher agency (r = 0.27, p = 0.003, n = 119). Participation in institutional rehabilitation programming was summed for participants (range 0-10, M = 4.2, SD = 2.9) and a significant correlation was found between program attendance and negative outcome expectancies (crime causes negative outcomes) (r = 0.22, p = 0.02, n = 122). Demographic outcomes indicated that crime, but not desistance was related to age with older offenders endorsing negative expectancies (r = 0.40, p = <0.001, n = 122). Lloyd & Serin (2012) expected that married offenders or those involved in significant relationships would endorse greater belief in desistance than single offenders. The opposite was found (single: M = 45.3, SD = 4.9 versus M = 42.8, SD = 5.6; N = 122, t (120) = 2.28, p = 0.02, d = 0.49).

Lloyd & Serin (2012) suggested that understanding and detecting when offenders are poised for desistance through tracking treatment gains and the use of self-report assessments, might offer a viable alternative to the current risk-focused perspective. While the current study is concerned with predicting desistance, it is of interest to study the work of Lloyd & Serin for the purpose of expanding the agency discussion when examining the results of the current study.

Maruna (2001) stated that offenders who successfully desisted from crime were able to develop a new sense of self through life scripts that helped them rewrite their past criminal activity, their current life situation, and their anticipated future as a prosocial person. Maruna (2001) referred to this process as "willful cognitive distortion" because such images of self are often exaggerated senses of purpose, but they enable the offender to move away from his or her criminal past and toward desistance. Paternoster & Bushway (2009) differ from Maruna (2001) in that their identity theory of desistance requires that the desister casts off his/her past and replaces it with one that is consistent with the future-self. It should be noted that Maruna's work has been criticized for sample selection and the exclusion of violent offenders such as those convicted of armed robbery and rape. But as Terry & Presser (2002) noted, despite its shortcomings, Maruna's work stands as an important first step in understanding the personal agency element of desistance. King (2013) suggested that a series of cognitive shifts were necessary to accommodate the change in attitude that allowed would be desisters to envision their alternative-selves. King (2013) and Paternoster & Bushway (2009) agree that the change is intentional and initiated through a process of the individual envisioning a future-self that is based on legitimacy.

Giordano, Cernkovich, & Rudolph (2002) suggested that while social control factors were important to the change process involved in desistance, a more important internal control was evident and necessary to effect change at the cognitive level. Giordano, et al. (2002) reasoned that the presence of cognitive transformation helped explain desistance among offenders who did not have the social control elements present that Sampson & Laub identified. Importantly, Giordano, et al. (2002) noted that their cognitive approach was not inconsistent with the social control approach and that the two theoretic approaches could, and should, be used

together to create a more complete understanding of desistance. Healy (2013) noted that offenders can move away from crime without cognitive change when sufficient external life events are present, but also emphasized that cognition must be included as part of the agency conceptual framework.

Giordano, et al. (2002) described four elements necessary to effect cognitive transformation. First, and arguably most important, was the offender's openness to change. Second, was the introduction of changing points or "hooks", and the offender's internal reaction or perception of the hook in terms of its compatibility with his/her self-perception, which is directly related to the third element of the development of the replacement self. The replacement self, then, acts as a cognitive decision-making filter. Finally, Giordano, et al. (2002), suggested that the desistance process would not be complete if the individual had not changed the manner in which they viewed deviant behavior. The offender must view deviant behavior as negative and no longer relevant to his/her life. Giordano, et al. admitted that they oversimplified the connection between cognition and associated prosocial change, and suggested that additional research was necessary to understand why some offenders make cognitive change without transforming their behavior. As a partial answer to the observations of Giordano, et al. (2002), Healy (2013) suggested that the scope and content of existing correctional cognitive therapy programs were reflective of a socio-political agenda that focused on public safety and reflected a managerial ethos, which emphasized the learning of effective thinking skills to produce responsible risk-free citizens. The results, according to Healy (2013), were cognitive-behavioral programs that were generic and allowed for little individual treatment. Finally, Healy (2013) asserted that some offenders might have feigned compliance to gain incentives offered through the programs.

Lloyd & Serin (2012) echoed Giordano, et al. (2002) in acknowledging the importance of the offender embracing the life's turning points or "hooks" as meaningful and desirable opportunities. Lloyd & Serin (2012) further suggested, however, that the psychological significance attached to these turning points was most important. King (2013) appeared to agree with Lloyd & Serin and stated that when an individual is presented with potentially life-changing turning points, they must have the necessary motivation and attitude to take advantage of them. For King the central issue to be addressed by individuals seeking to desist is the development of strategies that will enable them to move away from criminal activity through successfully transforming structural changes with motivation and attitude toward desisting from crime. According to King (2013) the function of the self as it relates to generating agency and behavior is under theorized and that an exclusive focus on cognition to explain the relationship too narrowly interprets agency.

Healy's (2013) position regarding institutional programming notwithstanding, institutions such as prisons might offer offenders a "safe" environment in which to exert their agency. In other words, individuals might test the results of exercising their desire for change, as explained by Lloyd & Serin (2012), within a controlled environment. Although absent the qualities of the informal social structures outlined by Sampson & Laub (1992), incarceration might act as a formal social control and offer key turning points for offenders. Adequate programming within institutions might aid offenders in changing their views of turning points or hooks in relation to their self-perception as outlined by Giordano, et al. (2002), and present offenders with opportunities to test their compatibility with positive change.

Structure

As outlined by Farrall, et al (2011) structure refers to social institutions and systems such as marriage, job, legal system, etc. While the term structure may infer a static and unchanging set of social institutions and norms, the opposite appears to be the case. Some structure is informal in that the influence on an individual's behavior might be exerted through personal relationships and pressure to conform from people who are significant to the offender. Other institutions, such as the justice system, exert a more formal level of control in that their influence is more direct and impersonal and pressure to conform is on a macro-societal level. Farrall, et al, (2011) importantly pointed out that these structural influences changed according to time and location. In other words, the social norms of the 1950s were very different from the social norms of the 1980s, and varied from location to location. Giddens' structuration theory and the concept of the duality of structure as stated by Farrall, et al. (2011) stated that:

> …the constitution of agents and structures are not two independently given sets of phenomena, a dualism, but represent a duality…Hence, the structural properties of social systems…are the medium and outcome of the contingently accomplished activities of the situated actors. (p. 551)

Positions arguing for the structural influences on desistance are anchored in Hirschi's Control Theory (Barry, 2013). In his classical work on Control Theory Hirschi (1969) asserted that individuals commit crime when they have weak or broken bonds to society. Conversely, individuals are less likely to commit crime when their societal bonds are strong. The four elements of social bonds are attachment, belonging, commitment, and belief. Attachment is central to the development of social conscience and the acceptance of social norms. Commitment entails working within the societal norms for gain, and with the accumulation of the benefits of

society individuals are reluctant to engage in activity that would jeopardize their gains. Involvement in society's activities ensures that individuals are too preoccupied in participating in prosocial activities to have time for antisocial behaviors. Belief is an individual's level of value associated with moral validity of social norms. The more one believes in the moral value of norms, the more likely one will be to comply with those norms (Herschi, 1969).

The work of Sampson & Laub (1992) described the process of desistance through the life course as a function of informal social controls. Additionally Sampson & Laub (2003) found that social controls related to key turning points such as work, marriage, and military service played an important role in desistance among adult offenders. Sampson & Laub (1992) stated that it was generally accepted that crime peaks during the teenage years then declines with age. The authors went further, however, and asserted that the criminological community had not given due attention to the desistance of criminal behavior and the transitions involved from childhood criminal behavior to adult noncriminal behavior; or, criminal desistance over the life-course. As described above by Sampson & Laub (1992) this life-course perspective focuses on offender behavior over time and the social forces and influences of age-graded transitions and life events. Sampson & Laub suggested that perhaps certain events during the life course, which they called turning points, influenced individual persistence or desistence in deviant behavior. The primary thesis presented by Sampson & Laub was that social capital and turning points were central to understanding change in criminal behavior.

Sampson & Laub (1992) explained that the continuity of antisocial behavior from adolescence into adulthood was manifested in criminal behavior, substance abuse, marital problems, and unemployment. The authors suggested that the social factors that contributed to criminal activity were the same factors that explained criminal desistance "…we contend that

pathways to both crime and conformity are modified by key institutions of social control in the transition to adulthood (e.g., employment, military service, and marriage)" (p. 304). Sampson & Laub further asserted that it was not solely the social institution that impacted desistance, but a combination of the social institutions and other informal social controls such as employment and the associated stability, relationships, and friendships surrounding employment worked together to establish increased social control. Likewise, the institution of marriage alone did not promote desistance, but the informal social bonds related to marriage strengthened the individuals social capital and enhanced the process of desistance. Sampson & Laub (2005) elaborated that theoretically, marriage offered an opportunity for the individual to sever his past from the present; presented opportunities for new relationships, social support, and new non-criminal social networks; offered a form of informal supervision and behavior monitoring; allowed for focus on family rather than on antisocial relationships and peers, and; gave the individual an opportunity to reinforce a new self consistent with a prosocial identity. Forrest & Hay (2011) commented that the processes of socialization were altered through marriage for offenders because elements of interpersonal attachments and conventional goals were combined that created a system of obligations and constraints sufficient to impose significant costs to acting on criminal propensities. Additionally, Forrest & Hay (2011) appeared to support the findings of Sampson & Laub (2005) by suggesting that marriage reduced the amount of time individuals spent with their criminal associates and increased the amount of time they spent with their families or informal supervisors.

Relating marriage to structure and key life transitions with regard to self-control, Forrest & Hay (2011) stated that marriage acted as a key life transition and provided different behavior standards, concern for self-regulation and situations in which to practice self-regulation, and

attentiveness to the needs of others. Forrest & Hay (2011) hypothesized that married individuals would experience increased self-control; married participants would experience decreased probability of crime engagement; and that the relationship between marriage and criminal activity would be reduced when controlling for changes in self-control. Forrest & Hay (2011) used data from the Child and Young Adult Supplement of the National Longitudinal Study of Youth (NLSY79). The supplement was part of a longitudinal study of the children born to participants of the 1979 study. Beginning in 1994 and ending in 2004, participants were interviewed every two years regarding their involvement in crime, other deviant behavior, and their experiences in key life transitions, including marriage.

Forrest & Hay (2011) used six items from the NLSY79 that assessed self-perceived impulsivity and risk-taking tendencies to measure self-contol perceptions among the sample. Higher scores on the scale indicated higher levels of self-control (M = .64). A sample of 3,250 participants ages 15 and above (baseline) were able to be questioned at least twice allowing for at least two observation points, which enabled Forrest & Hay (2011) to measure changes in self-control and relate these changes to changes in marital status. Participant use of marijuana was used to indicate involvement in crime. Forrest & Hay (2011) explained that marijuana use was selected because the same question had been part of the original study and had appeared throughout the follow-up surveys, and that marijuana use was prevalent among the young adult population and changes in its use could be easily monitored. Participants were asked whether or not they had used marijuana during the last year and coded accordingly. Marriage was measured as a dichotomous indicator coded 1 if married and 0 if not married. Control variables included demographics of age, sex, race, and ethnicity. Because there were other notable life-course transitions for young adults, Forrest & Hay included cohabitation (interpreted much the same

way as marriage), employment status, and educational status control variables. Lastly, the authors controlled for changes in neighborhood characteristics recognizing that improvement in living conditions might influence criminal involvement.

Forrest & Hay (2011) found that participants who married during the study period reported a 0.25 point increase in self-control while almost half of all participants reported declines in self-control. Participants who engaged in cohabitation relationships experienced a 0.19-point increase in self-control, which was similar to the effect of marriage. Marriage emerged as important to self-control as time "…a standard deviation increase in the number of years between interviews was associated with a 0.06 point increase in self-control; nevertheless, those changes did not exceed the standardized coefficient estimate for marriage" (p. 497). However, neighborhood conditions appeared to have a greater impact on self-control than either time or marriage as standard deviations of increased perceived neighborhood problems resulted in 0.08 point decreased self-control. Among participants who reported marijuana use during the preceding 12 months of the baseline and were not married or cohabitating and reported being married during the study (n = 399), a 0.48 point increase in self-control was observed. For those who cohabitated, the increase in self-control was smaller than that associated with marriage (Forest & Hay, 2011).

Regarding their second hypothesis that marriage had a negative effect in criminal activity, Forrest & Hay (2011) found that participants who were married at the time of the 2004 interview were 2.38 times more likely to have desisted from marijuana use as their unmarried counterparts. For cohabitating participants, however, there was no significant effect on the likelihood of desistance from marijuana use.

For their third hypothesis that the relationship between marriage and criminal activity would be reduced when controlling for changes in self-control, Forrest & Hay (2011) found that in their expanded model the coefficient declined from -0.87 to -0.69; "…a 16 percent reduction in the odds of desistance relative to persistence" (p. 502). Forrest & Hay suggested that the hypothesis was supported by the reduced marriage coefficient. They further argued that based on their findings, researchers should reconsider the role of self-control in life-course discussions regarding desistance.

On the question of cohabitation versus marriage in improving the probability of desistance Farrall, Bottoms & Shapland (2010) suggested that the research provided mixed evidence of the impact of the two variables. On the one hand, Sampson & Laub (2005) expected that the data collected for their 1993 work on desistance would support the idea that cohabitation would result in similar statistical outcomes as marriage related to enhancing desistance. Savolainen (2009) found that there was little evidence to support the Sampson & Laub expectation and stated that offenders who cohabitated recidivated at a lower rate that those who were married. Craig & Foster (2013) suggested that it was not the institution of marriage itself that promoted desistance, but the resulting pressure on the individual from the other various social interactions associated with marriage to not reoffend that promoted desistance. Craig & Foster (2013) appeared to agree that cohabitating relationships (not necessarily marriage) resulted in increases in desistance. This quasi-marriage model seems to support the findings of Sampson & Laub (1993, 2003, and 2005) in that there is agreement that marriage and/or cohabitation provides protective elements such as close emotional ties and mutual investment.

In their study of Spanish inmates nearing the end of their incarceration periods, Cid & Marti (2012) supported the findings of Sampson & Laub (2003) and emphasized the importance

of social bonds in the desistance process, and the changing nature of the offenders in relation to their interactions with social institutions as they age citing cognitive transformation and interpersonal relationships favoring change (turning points) as catalysts for desistance. Comparing desistance and persistence narratives, Cid & Marti (2012) found that men who became romantically involved with partners who required that they change their lifestyle, viewed their relationships as turning points. Offenders with desistance narratives pointed out that their relationships were instrumental in their motivation to seek and maintain employment, change peer groups to more prosocial peers, seek out self-improvement programming while incarcerated, helped in building broader family support through positive behaviors, and enhanced self-efficacy. Among young-adult offenders ages 27 to 35, Cid & Marti (2012) noted a general absence of turning points owing to romantic relationships during the transition between adolescence and adulthood, and difficulty with turning points of any sort in adulthood due to prolonged criminal activity and subsequent incarceration periods during the life course. The desistance narratives within this sample, however, noted that they had experienced the crystallization of discontent as defined by Paternoster & Bushway (2009). Cid & Marti (2012) pointed out that the offenders who experienced the turning points without intimate relationships generally had the support of family. In short, Cid & Marti argued that offenders with desistance narratives had developed an attitude that facilitated change through supportive family and spousal-like relationships. Participants with persistence narratives did not have these types of supportive relationships.

The findings of Cid & Marti (2012) related to the absence of romantic turning points due to long periods of incarceration among young adult offenders is of interest for the current study. The study examined desistance among this population (ages 25 to 30) using variables related to

prior justice system engagement and length of incarceration. A finding of a low rate of desistance among young single offenders who have experienced an extended length of incarceration might support the Cid & Marti findings. On the other hand, a high rate of desistance among this population might be cause for further research and study.

Simons & Barr (2012) studied longitudinal data of 600 African American young adults to test the hypothesis that there was a significant association between romantic relationships and desistance from crime. More specifically, Simons & Barr (2012) suggested that only romantic relationships that were warm and supportive enhanced desistance. While noting that the work of Sampson & Laub (2003) had shown marriage to have a significant relationship to desistance, Simons & Barr (2012) emphasized that marriage had become less prevalent during the intervening decade, which required a closer examination of the romantic relationships that do not involve marriage.

Agreeing with both Sampson & Laub (2003) and Cid & Marti (2012), Simons & Barr (2012) suggested that quality romantic relationships resulted in a reduction of unstructured time spent with deviant peers.

Literature Gaps

Farrall & Calverley (2006) pointed out that the study of desistance is somewhat new to criminology, and it has been only during the past 10 to 20 years that research in this area has been extended. According to Farrall & Calverley (2006) the most notable gaps in the literature exist in relation to desistance among women offenders, sex offenders, ethnicity, and the impact of criminal justice interventions on desistance. Referencing studies by Graham & Bowling (1995), The British Home Office (2000), Sommers, et al. (1994), and others, Farrall & Calverley explained that the processes leading to desistance might be very different for women than for

men. The existing literature, however, was inconclusive and lacked in-depth analysis into desistance. For example, Farrall & Calverley suggested that males need longer time periods to desist than do females, but the existing studies did not discuss desistance among various age groups of female and male offenders. While the current study does not include females, it does include sex offenders (not differentiated in the sample), and addresses ethnicity.

Farrall & Calverley (2006) noted no difference in rates of desistance among ethnically diverse offenders in the United Kingdom, but the study did not examine how the processes of desistance might differ among different ethnic groups. Studies conducted in the United States have found that African American offenders have longer violent careers than do white offenders, except when employment and living conditions are considered (Elliot, 1994). Rand (1987) as cited in Farrall & Calverley (2006) found results similar to Elliot in a strong relationship between white males and early desistance. Both Elliot (1994) and Rand (1987) depended upon official records for their data and the reliability of ethnic group identification was questionable according to Farrall & Calverley (2006). The current study will use official Oregon Department of Corrections data to identify race/ethnicity, and while the current study will not focus on African American offenders, data for this group is included in the race variable.

Beyond examining the impact of correctional and probationary sex offender programing on sex offenders, Farrall & Calverley (2006) asserted that very little research had been devoted to examining the impact of informal social controls, employment, and family support in promoting desistance among this population. As noted above, sex offenders are included in the sample of the current study, but not differentiated as a separate variable.

Lloyd & Serin (2012) asserted that the psychological mechanisms that were thought to drive desistance had not been adequately or systematically measured. Additionally, Lloyd &

Serin stated that the research lacked standard measurements that could be applied to large samples. More specifically, Lloyd & Serin implied that the internal mechanisms of desistance (agency) had been under studied due to this lack of standard measurement. Lloyd & Serin (2012) concluded that their scale to measure intention to change resulted in a feasible framework for future desistance study, and emphasized the need for future studies with larger samples. Additionally, Lloyd & Serin stated that future research should seek to understand how an individual's willingness to change interacts with the situations presented during post-prison supervision periods. Crime and rehabilitation have primarily been studied from a risk-based recidivism perspective, observed Lloyd & Serin (2012). But they further suggested that by detecting when an offender is poised for desistance, more substantive treatment gains might be realized. The significance of the Lloyd & Serin (2012) study has been discussed above.

Paternoster & Bushway (2009) suggested that the existing literature had not empirically identified causal mechanisms for desistance related to offender identity and changes in social preferences and social networks. They argued that it was possible to use existing databases to measure subjective mental states that impact an individual's propensity toward desistance. Additionally, Paternoster & Bushway (2009) called for additional research that would assist in finding "…a way to measure individual motivation, free will, and ultimately the decision to initiate and embrace the process of change" (p. 1134). While they suggested that agency is a fundamental element of desistance, Paternoster & Bushway (2009), stated that there was no working operational framework to use for determining the dimensions of human agency.

Lloyd & Serin (2012) noted that existing literature lacked focus on cognition, motivation, and attitudes throughout the criminal career. Subsequently, Lloyd & Serin hypothesized that the treatment effect on crime was related to treatment designed to change thinking processes in

offenders that targeted cognitive techniques for influencing the perceived consequences of crime. Further, they stated that the hypothesis had not been adequately tested and could not be until more focus was placed on research that targeted cognitive variables.

The work of Lloyd & Serin (2012) partially addressed the concerns of Paternoster & Bushway (2009), and the current study hopes to further inform the discussion by offering a regression analysis model that can be used for determining significant variables related to agency.

In their study regarding neighborhood contextual factors and spatial contagion, Stahler, Mennis, Belenko, Welsh, Hiller, & Zajac (2013) suggested that prior research related to recidivism prediction and focused on individual characteristics of offenders and had failed to include neighborhood predictors. Stahler, et al. (2013) offered theoretical support from differential association and differential reinforcement theories stating that peer contagion strongly influenced recidivism among delinquent youth studied by Mennis & Harris (2011).

King (2013) suggested that the current literature did not adequately address the role of structure in conditioning agency. That is, an individual's freedom of choice when faced with the realities of structural barriers. King argued that the existing literature's range of potential opportunities for offenders was based on middle-class experiences and did not reflect the structural reality that offenders faced daily. In terms of impact on the offender's ability to maintain behaviors that are consistent with desistance, King (2013) asserted that offenders were likely to revert to habits and routines that offered them a familiar set of social roles and relationships. And while these routines and habits may not lead directly to future offending, "…they may be less likely to lead to desistence because such routines are unlikely to be stable in

the long term given the contingent and changeable nature of institutions in contemporary society" (p. 331).

While the proposed study will not identify specific neighborhoods that offenders will be released to, it will identify county of residence. Data is available related to county level recidivism rates and the correlations between high recidivism counties and other variables in the study may be used in multivariate analysis to predict desistance.

Variables

This study examined offenders released from custody between January 01, 2008 and December 31, 2010 ages 25 to 30 (inclusive) at time of release. There is one dependent variable and 11 independent variables (IV). Several independent variables are discussed below. Because the study used a forward stepwise regression analysis, the regression model eliminated five of the original 16 variables entered for analysis of significance.

Dependent Variable

The dependent variable for this study is a binary variable that measures the outcome yes or no for the question; did the subject desist from crime for the three-year period being observed? Desistance is defined as the absence of official sanctions, arrests, parole violations, and/or convictions for any new offense.

Independent Variables

Custody Number

Custody Number is defined as the number of previous parole or post-prison supervision discharges for each subject. This includes parole or post-prison supervision from states other than Oregon.

The literature is almost silent regarding the effect of custody number as defined in this study. This holds true for both desistance and recidivism studies. Most of the studies found examined the effect of prior incarcerations on recidivism. Steen & Opsal (2007) was one exception and stated that prior parole experiences among inmates increased the probability of parole revocation during the two to three years of the study. Steen & Opsal found that offenders with prior parole experiences were 121% more likely to have their parole revoked for new criminal activity, and 80% more likely to parole violations related to technical violation than offenders with no prior parole experiences.

Considering its significance in the current study, custody number appears to be an area that would warrant additional study and examination.

Race

Laub & Sampson (2001) noted that there was some evidence race might influence rates of desistance due to differences in structural contexts such as rates of marriage, neighborhood differences and the likelihood of being exposed to criminal elements. Farrall, et al. (2011) noted that ethnicity dramatically shaped offender opportunities and pathways to both crime and desistance. Farrall, et al. emphasized, however, that they were not suggesting that some ethnic groups are more prone to crime, but noted instead that ethnicity indexes included such elements as place of residence, family structure, poverty, employment status, and other socio-economic processes and factors. Farrell, et al. also suggested that ethnic differences related to family and community among Bangladeshis, Indians, and Black-Britons had desistance implications and "…these structural and cultural differences were responsible for shaping the environment where desistance took place and the means and opportunities to do so" (p. 221).

McGovern, Demuth, & Jacoby (2009) studied recidivism rates among White, Black, and Hispanic offenders who were released from state and federal custody in 1994 using Bureau of Justice Statistics. The cohorts were tracked for three years and recidivism was measured as any rearrest, reconviction, or reincarceration during the study period. The sample size for the study was 142, 095 released offenders from 15 different states including Arizona, California, Delaware, Florida, Maryland, Texas, and Michigan. The sample furnished sufficient numbers of Black, White, and Hispanic subjects and covered a sizable portion of prisoners released in 1994 to permit generalization of the findings (McGovern, et al., 2009). McGovern, et al. noted, however, that because the database is reliant on official records, it might not capture all offenses due to data input problems between the various states. The goal of the study was to determine if Black and Hispanic offenders recidivated at a higher rate than their White counterparts. The findings indicated that 70.9% of Blacks were rearrested, 60.6% of Hispanics, and 58.5% of Whites. In terms of reconvictions, Blacks were reconvicted at 48.8% and returned to prison at 28%; Hispanics were convicted at 40.7% and returned to prison at 22.8%; and Whites were reconvicted 38.4% and returned to prison at 20.0%. Multivariate analysis using Whites as the reference group revealed that Black offenders were 1.56 times more likely to be rearrested ($p < .001$), 1.33 times more likely to be reconvicted ($p < .001$), and 1.38 times more likely to be resentenced ($p < .001$). Hispanics were 1.13 times more likely to be rearrested ($p < .001$), 1.00 times more likely to be reconvicted, and 1.27 times more likely to be resentenced ($p < .001$). For all three groups, using the age group 18 to 24 years of age as a reference group, offenders between the ages of 25 and 29 years old were 0.56 times more likely to be rearrested ($p < .001$), 0.65 times more likely to be reconvicted ($p < .001$), and 0.72 times more likely to be resentenced ($p < .001$).

Substance Need

Pathways to Desistance (n.d.) utilized the Substance Use/Abuse Inventory, which is primarily a self-report tool that assesses offenders and significant others in the offenders' lives for recent and historic drug and/or alcohol use. ODOC uses the Level of Service – Case Management Inventory (LS/CMI), and official court documents to establish risk level.

Przybylski (2008) noted that research supports the claims that substance abuse treatment works in reducing drug and alcohol abuse and is effective in reducing crime, even when the participants are unwilling to engage in the treatment process. Specifically, Przybylski cited the National Treatment Improvement Evaluation Study, which included over 4,400 people and found that substance abuse treatment was effective in decreasing criminal activity among participants. Mulvey (2011), citing Pathways to Desistance findings, suggested that substance abuse treatment was effective in reducing substance use and reducing criminal activity for the six-month follow-up period used in the study.

Because of the effects of drugs on cognitive functioning and social interactions and environments, the issue of substance abuse relates to desistance in terms of both the structural and agency theoretical frameworks outlined above (Maruna & Immarigeon, 2004). The authors also stated that criminals do not generally consider the risks involved in crime, and drugs and alcohol further deaden any fearful apprehension of being caught. Certainly, the link between drug and alcohol use and criminal activity has been extensively studied. In his qualitative research findings Maruna (2001) found that 93 percent of the desisting population and 95 percent of the active population admitted to regular drug use at some point in their lives. More specifically, two-thirds of the sample studied admitted to being addicted to drugs or alcohol at some time during their lives. Maruna (2001) stated:

> The more convictions an individual has, the more likely that the individual is a drug abuser: in state prisons, 41 percent of first offenders have used drugs regularly, compared to 63 percent of inmates with two prior convictions and 81 percent of those with five or more convictions. (pp. 62-63)

The Unites States Bureau of Justice Statistics (BJS) (n.d.) indicated that for the 1995 reporting period 55.6% of all probationary DWI offenders, and 64.2% of all other offenders reported using drugs regularly at some point in their lives. For jail inmates, BJS reported that in 2002 82.2% of offenders had ever used drugs and 68.7% had ever used drugs regularly. Additionally, BJS stated that 54.6% had used drugs during the one month prior to their arrest, and 28.8% had used at the time of their instant offense. For state prisoners in 2004, BJS reported 83% had ever used drugs.

Prior Revocations

In addition to any prior parole revocations resulting from previous custody cycles, prior revocations include the current incarceration if the subject was incarcerated for a violation of the conditions of parole, post-prison supervision, or probation. Steen & Opsal (2007) noted that between 1980 and 2000 the percentage of people entering prison for parole violations climbed from 27,000 to 203,000. Steen & Opsal further pointed out that the total number of persons entering prison for parole violation in 1999 was greater than the total number of all persons entering prison in 1980.

The ODOC (2011) reported there were 2,618 inmates in custody in either jail or prison for new criminal activity reported while on parole, post-prison supervision, or probation. Offenders who had violated the conditions of their parole or post-prison supervision occupied 2% of Oregon prison beds, and inmates revoked from probation status occupied another 19%.

According to ODOC (2011), there were about 30,000 to 35,000 offenders supervised by community corrections in Oregon at the time of the report. Approximately 55% to 60% were offenders who had been released from prison, and about 40% were on probation as the result of a local sentence (less than one year incarceration term). Oregon statue allows parole/probation officers to sanction these offenders for violating the conditions of their supervision with sanctions that include local jail terms and community service. For new criminal activity, sanctions range from local jail to ODOC incarceration.

The sample included in this study were among the above categories of offenders as they had been released from prison to parole or post-prison supervision, and were subject to the sanctioning process noted above.

Prior Incarcerations

Steen & Opsal (2007) posited that individuals who had been to prison were held to different standards when considering the criminal justice decision-making process due to higher community risk. Bales & Piquero (2012) found that individuals with prior incarceration records had an average of 1.39 violations of community supervision conditions as compared to an average of .86 violations for those without prior incarcerations. Bales & Piqeuro (2012) additionally found that among the Florida sample in their study, prior imprisonment increased the likelihood of recidivism. Specifically, they found that ex-prisoners recidivated 11.7% more within one year, 15.2% more within two years, and 15.4% more during the third year than non-prisoner control groups ($p > .001$).

In their Michigan study of former prisoners' neighborhood and other residential and environmental conditions, Harding, Morenoff, & Herbert (2013) noted that incarceration was highest for offenders coming out of poor urban areas and that the demographics of this

population had a high rate of intermediate parole sanctions, and returns to prison. Harding, et al. (2013) suggested that the existing low socio-economic environment that these offenders were returning to contributed to their already diminished ability to find employment, and further posited that parole sanctioning requiring compulsory relocation (jail, residential treatment, etc.) damaged already fragile or weak community and family ties. Adding to an already difficult transition, many offenders had restitution payments, supervision fees, and were not ineligible for public assistance or housing subsidies (Harding, et al., 2013). The authors pointed out that the socio-economic conditions and criminal justice policies varied greatly from state to state, and the demographics of Michigan include fewer Hispanics and Asians that are present in other regions of the country. The important conclusion of the work of Harding, et al. is that which supports the desistance theory of formal and informal social control as discussed above. Weak and/or absent family and community support diminish the offender's access to positive informal and formal social control mechanisms and that prior incarceration exacerbated the situation.

Crime Severity

This variable measures the crime with the highest crime severity rating from among the crimes for which the subject was incarcerated. If the subject was imprisoned for a single crime, that crime's severity rating is used. Oregon's crime severity ratings are numbered from 100 to 810 in descending order of severity. In other words, the higher the number of the rating, the lower the severity of the crime. For example, Aggravated Murder has a crime severity rating of 100, parole violation has a rating of 399, and permitting a dog run at large has a rating of 810. There are 1031 crimes listed and some crimes share the same crime severity resulting in a total of 184 actual crime severity categories.

Bales & Piquero (2012) found that the type of crime for which offenders were incarcerated affected their likelihood of recidivism. The authors found in their Florida study that property offenders recidivated at a higher rate than violent offenders. The work of Durose, et al. (2014) agrees with the findings of Bales & Piquero (2012) as their study reflected that in 2005 77.6% of all property offenders released from prison recidivated within three years. It is worth noting that although other categories were similarly high (violent offenders, 65.6%; drug offenders, 71.4%, and public order offenders, 66.9%) property crimes do not generally carry the high severity rating ratings that violent crimes carry in Oregon. It seems counter-intuitive to suggest that property offenders would recidivate at a higher rate than violent offenders, but Bales & Piquero noted that the high recidivism rate was accompanied by a high number of community supervision violations.

Disciplinary Reports/Infractions

Cochran, Mears, Bales, & Stewart (2014) found that among Florida offenders those who engaged in misconduct while in prison were more likely to recidivate than those who did not. Moreover, the study found that the higher the rate of misconduct, the higher the probability that the individual would recidivate. Cochran, et al. further noted that Gottfredson & Adams (1982) suggested that prison misconduct was significantly related to parole infractions, and that Meta analysis of prison programming revealed that interventions that targeted prison misconduct appeared to reduce recidivism.

Valentine, Mears, & Bales (2015) researched institutional misconduct as it related to age and found that the age effect on misconduct was robust among both juvenile and adult offenders. More specifically, they noted that misconduct was more pronounced among young offenders and occurred at higher rates during the initial incarceration experience. Notably, and consistent with

the age-crime distribution curve, Valentine, et al. found that the misconduct declined rapidly beginning in the offender's early twenties, then slowly tapered off as they entered adulthood. Accordingly, Valentine, et al. (2015) stated that their results indicated a positive and statistically significant effect of age on misconduct. Their results showed that offenders who were age 27 and younger were more likely to engage in prison misconduct.

Cochran, et al. (2014) suggested that prison misconduct might act as a proxy for an inmate's tendency to offend. The effects of prison misconduct on parole, they posited, might be due to labeling theory in that the offenders were viewed as problem individuals and carried that expectation with them into the community. Additionally, Cochran, et al. stated that social learning theory might explain the misconduct behaviors as a result of the learning experiences of the prison environment. Lastly, the authors mentioned Sherman's defiance theory (1993), which stated that the negative prison experiences would produce lasting feelings of injustice among offenders and increase their likelihood to offend.

From a desistance perspective, prison misconduct might be more closely related to an offender's unwillingness or inability to engage in a positive desistance narrative. Consequently, the offender might still embrace positive crime expectancies and negative desistance expectancies as outlined by Lloyd & Serin (2012). Polaschek & Yesberg (2015) suggested that inmates have many opportunities to engage in misconduct while in prison, and, therefore, have many opportunities to abstain from misconduct. This abstaining behavior might be characterized as prosocial and law abiding.

Length of Stay

Roach & Schanzenbach (2015) discussed the effects of lengthy imprisonment on recidivism. When, they asked, is the optimal point reached where incarceration begins to have a

reverse effect causing the offender to experience the criminogenic effects of prison rather than the rehabilitative effects? Roach & Schanzenbach suggested that longer prison terms might increase the likelihood of post-prison criminal activity because it isolated offenders from the legitimate workforce and exposed them to new criminal networks. Additionally, they stated that the psychic impact of prison might be diminished with longer sentences as the offenders could develop coping skills for life inside prison thereby lessening the deterrent effect for future criminal behavior. The benefit of deterrence and incapacitation may be short lived, they offered, because at some point imprisonment becomes criminogenic thereby increasing the probability of post-prison offending.

On the other hand, Roach & Schanzenbach (2015) stated that longer prison sentences as initial punishment might have an added deterrent effect beyond general deterrence when prosocial and rehabilitative prison programming is available. They cautioned, however, that the length of incarceration required to attain this additional benefit was unknown. Absent programming or prosocial environment, the authors suggested that the experience of punishment itself might provide deterrence as the offender might find it so distasteful that the additional length of the sentence might the intensify deterrence effect. Although the purpose of the Roach & Schanzenbach (2015) study was to ascertain optimal sentence length for the purpose of attaining maximum rehabilitative effect, the study did not include violent offenders and was limited to incarceration periods of three to nine months. The study concluded, however, that offenders who were able to stabilize at an early stage of release were more likely to remain crime free for the three-year period of the study. For offenders with lengthy criminal history, there was no notable reduction in the level of criminal activity regardless of length of incarceration or early stabilization. Despite the design of the study, these findings might indicate a relationship

between the presence of early stabilization on supervision and desistance theories related to personal agency and social control as outlined by Lloyd & Serin (2012) and Sampson & Laub (1992). Lastly, Polaschek & Yesberg (2015) suggested that long prison sentences might act as turning points for offenders and offer them momentum for initiating the first steps of desistance narrative.

Earned Time

According to the Oregon Secretary of State (2010) the administration of the sentence reduction policy with the ODOC is complex, as the State has undergone several sentencing reforms since 1989 reflecting the changing approaches to incarcerating offenders. At times, some offenders may be subject to sentencing rules that span two or more sentencing structures and are, therefore, eligible for sentence reduction under separate guidelines. Additionally, mandatory minimum sentencing laws have affected the administration of sentence reduction. For the majority of offenders, however, a sentence reduction of up to 20% is possible depending upon institutional behavior and program participation. Earned time may be withheld for certain types of misconduct and program failures, and in some cases earned time may be retracted for certain levels of misconduct (Oregon Secretary of State, 2010).

Earned time is computed at six months intervals and offenders may earn awards of 10% for each of the two categories to total 20%. Awards of earned time are either 0% or 10%. In other words, the offender is either granted 10% sentence reduction for the category, or no earned time (Oregon Secretary of State, 2010).

According to the Oregon Secretary of State (2010) at least 21 other states and the Federal Bureau of Prisons incorporate some form of sentence reduction based on varying levels of inmate conduct and program participation. The common goals of these programs appear to be

two fold: to reduce the rising costs of incarceration, and to act as a behavior management tool for institutions. Recognizing that incarceration reduction is not the only possible variable influencing recidivism, the Oregon Secretary of State noted that sentence reduction did not appear to have a negative impact on recidivism rates locally or nationally.

O'Hear (2015) suggested that sentence reduction programs were cost effective and safe practices, which, if properly designed, might improve institutional disciplinary problems, reduce recidivism, and save tax payers money. Additionally, O'Hear stated that properly administered sentence reduction programs improved safety for inmates and officers while providing incentive for inmates to participate in institutional programming.

Release Age

A focal point in the discussion of age effects on crime is the age and distribution of crime. As noted above, there are a numerous hypotheses related to the relationships between age and offending, but the latest works seem to agree that there is an interactive relationship between offender age, social control factors, and personal agency. Much attention has been paid in this paper to the work of Sampson & Laub who posited that age, human agency and social structure were active elements in the life course of offenders. Likewise, the work of Lloyd & Serin posited that there were relationships between cognitive perceptions of the benefits of crime and desistance, which were influenced by age and social control factors.

Rocque (2014) pointed out that desistance from crime was likely related to changes in attitudes, identity, and social relationships and that these changes were related to transitioning into adulthood. Rocque cautioned that the transition into adulthood was not a simple process, but involved complex internal and external forces and that no single theory was likely to capture all of these transitional elements. As noted above, Rocque (2014) supported an integrated approach

to understanding desistance and strived to underscore the importance of age in the process as it related to maturation of offenders.

Steen & Opsal (2007) noted that when compared to offenders 18 to 29 years old, offenders ages 30 to 49 were 26% less likely to fail on parole because of new criminal activity, offenders 50 and older were 59% less likely to reoffend, and 40% less likely to commit technical violations. Durose, et al. (2014) found that within five years of release, 84.1% of offenders age 24 and younger were arrested, 78.6% of offenders age 25 to 29, and 69.2% of offenders age 40 and older. Consistent with other data used in this study, this data supports the relationship between age and the distribution of crime. Specifically, that as offenders age they are less likely to commit new offenses.

Chapter 3

Methodology

Introduction

This research study was designed to examine which characteristics best predict criminal desistance among individuals released from custody from Oregon Department of Corrections' prisons and correctional facilities for the purposes of adding to the literature base of desistance among individuals between the ages of 25 and 30 years old, and informing the ODOC discussion related to the development of a predictive tool for desistance. Hence, the research question: Can criminal desistance be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors?

Logistic regression was used to analyze the data in this study. Logistic regression, according to Huck (2012), is similar to bivariate and multiple regression as they all deal with relationships among dependent and independent variables, allow for either categorical or continuous independent variables, can be used for prediction or explanation, can be used to test for significance, and all three regression types can be used in a simultaneous, stepwise, or hierarchical manner. The central difference between logistic regression and both bivariate and multiple regressions is that logistic regression revolves around the concept of odds ratio. Huck (2012) continued, "Most researchers utilize logistic regression so they can discuss the explanatory or predictive power of each independent variable using the concept of odds" (p. 395). The current study used logistic regression to examine the predictive power of the independent variables on the outcome variable of desistance.

The study used a forward stepwise regression model because of the large number of independent variables for examination. Stepwise regression begins with a number of independent variables that are being considered for inclusion into the regression model. Independent variables

are entered into the model one at a time based on the statistical criteria (in this case $p = < .05$). Predictor variables are then entered at each subsequent step according to value in increasing the Area Under the Curve (AUC). The model continues to run so long as additional variables add to the statistical significance of the equation. When there are no remaining statistically significant predictor variables available, the final model is recognized.

Dependent Variable

The dependent variable for this study is a binary variable that measures the outcome yes or no for the question; did the subject desist from crime for the three-year period being observed? Desistance is defined as the absence of official sanctions, arrests, parole violations, and/or convictions for any new offense.

Independent Variables

As noted above, the final independent variables included in the forward stepwise regression model were as follows: prior revocations, prior ODOC incarcerations, race, crime severity, substance abuse need, custody number, disciplinary reports for order violations, length of current prison term, person-to-person crime, earned time, and age at release from custody.

Participants

The population being studied is the Oregon Department of Corrections' offenders between the ages of 25 to 30 (inclusive) at the time of release. There are currently 11,634 males on parole or PPS. Approximately 2,772 or 24% are between the ages of 25 to 30 (Oregon Department of Corrections, 2014). For most offenders, active supervision ends after three years, but the offenders are tracked by ODOC for longitudinal data purposes related to recidivism and other outcomes. For these reasons, the actual number of offenders being tracked by ODOC for data purposes is much greater than the numbers that are on active supervision through parole or

PPS. The population for this study was inmates released from custody from January 1, 2008 through December 31, 2010. The total number of inmates released during this period who meet the criteria for inclusion in the study was approximately 2,855. The final sample size after adjusting for deleted or missing information was 2,641 subjects.

Demographic Information

The study included males between the ages of 25 to 30 at the time of exposure to risk (released to post-prison supervision or parole). An additional demographic related to race was included in the final stepwise regression analysis model. The race variable is discussed in greater detail above and differentiated between White and non-White subjects.

Data Set

The initial data set for this study was drawn from the existing data in the Oregon Department of Corrections' Inmate Database. ODOC tracks approximately 174 different variables for each inmate released from custody. For the current study, many of these 174 variables were not considered to be relevant as the study was concerned with variables that were related to the three theoretical areas of desistance of personal agency, age, and social control.

Procedures

Research Design

As noted above, the research design is forward stepwise regression analysis to determine which of the variables entered into the model contribute to or limit desistance (as defined in this study) with a statistical significance of $p = < .05$. The research design may be best described as a correlational approach with a predictive design. As described by Edmonds & Kennedy (2013) the correlational approach is used when researchers are interested in determining the relationship between variables or to predict outcomes based on predictor variables. Within the correlational

approach there are two designs, explanatory and predictive. The predictive design allows researchers to anticipate outcomes by analyzing the relationships between two or more variables. Edmonds & Kennedy (2013) further stated that advanced predictive designs usually require more advanced forms of regression analysis due to the number of variables being compared. Additionally, existing data sets can be used in the predictive design so long as the data are relevant to the appropriate time element. In this study, the time element is past and the data was archival.

Research Steps

Variable selection

The ODOC data set consists of 174 variables. Not all of the data qualify as variables, however, as some are identifiers. For example, Identification numbers and dates of certain tests are not relevant to the study. As noted, it was neither practical nor relevant to run all of these variables. An initial review determined which of the variables were included in the study. Initial review indicated that approximately 25 variables should be considered for the study. Further review narrowed the selection to 16 related to the theoretical areas of age, personal agency, and social structure.

Variable coding

The dependent variable, the absence of parole or post-prison supervision sanctions, police contacts resulting in arrests, or convictions (misdemeanor or felony), was coded either 1 or 0. 1 representing any incident of violation, and 0 representing no incidents during the 3 years measured. The target population (desisters) = 0.

There were two class level variables that were coded, substance abuse need and mental health need. Because the study calculated the likelihood to desist rather than recidivate, an inverse relationship was calculated.

Data Analysis

As noted above the research question is, can criminal desistance be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors?

Desistance, the criterion or dependent variable, was defined as a non-offending episode during the course of the time specified for the study. In this case the date of exposure to risk was determined as the date an offender was released from prison to PPS or parole. The end date was marked as three years from the date of exposure to risk. During this period if an offender received any PPS technical violations, experienced an arrest by law enforcement or parole officer, or was charged and/or convicted of a new offense, regardless of severity, the offender was considered to have failed and was designated a persister. Likewise, offenders who did not meet the above criteria were designated desisters.

SAS Forward Stepwise Regression

The study tested for desistance over a three year period from time of release among male offenders ages 25 to 30 inclusive; that is beginning at age 25 and including age 30 (6 year range). The following outline describes the steps of the forward stepwise regression model as calculated using SAS statistical software.

Ordered value. 1 = 0 events, 2 = 1 or more events

Ordered value refers to how SAS orders or models the levels of the dependent variable, in this case desistance. When the descending order option is selected, SAS treats the levels of

desistance in a descending order (high to low), and when the ordered logit regression coefficients are estimated, a positive coefficient corresponds to a positive relationship for desistance (i.e., increase in values of the tested variable produces higher levels of desistance) and a negative coefficient has a negative relationship with desistance (i.e., decrease in values of the tested variable produces lower levels of desistance) (Institute for Digital Research and Education (IDRE), 2015).

Chi-Square Test

The chi-square test is a non-parametric test that allows the analysis of data that comes in the form of frequencies (Salkind, 2011). In this case, the varying numbers of offenders that fall into the 6 age groups (25 to 30) being examined.

The chi-square test compares observations with what would be expected by chance. The formula for chi-square:

$$x^2 = \sum \frac{(O - E)2}{E}$$

As outlined by Salkind (2011) the chi-square test has eight steps. They are as follows:

1. Statement of the null and research hypotheses. Using the example of mental health need below where each level is mutually exclusive, the null hypothesis would state that there is no difference between the occurrences of desistence between the four levels, or H_0: $P_0 = P_1 = P_2 = P_3$. The research hypothesis would state that there is a difference between occurrences of desistence between the four levels, or H_1: $P_0 \neq P_1 \neq P_2 \neq P_3$.
2. Setting the level of significance. For this study the level of significance was set at $< .05$.

3. Selection of test statistic. As explained by Salkind (2011), the appropriate test statistic for calculating frequencies or proportions of mutually exclusive categories is the chi-square test.
4. Computation of the obtained value.
5. Determine the value needed for rejection of the null hypothesis by first determining degrees of freedom appropriate for each calculation.
6. Compare obtained value to critical value.

7 and 8. Determine, based upon step 6, whether to reject the null hypothesis or to accept it as the most attractive explanation for the frequencies of occurrence.

Class level variables

Using the mental health needs variable, this has 4 levels of need ranking in ascending order from 0 to 3 with the 3 being the most severe and 0 being no mental health need. Other Class Level variables included substance abuse need. Regression analysis for these variables computed the regression coefficients of each need level compared to zero, or no need.

Analysis for effects eligible for entry into regression analysis

This step of the forward regression analysis calculates the chi-square score of each variable considered for significance to desistance and selects variables eligible for entry according to the level of significance; i.e., $< .05$.

Step 1

The forward stepwise regression then begins with a calculation of the variable with the highest chi-square score of the variables eligible for entry. All variables, including those that were not selected for entry are included in the calculation and act as control variables.

The regression next tests the variable against the null hypothesis using both chi-square and Wald chi-square scores to determine significance. This is followed by an analysis of effect showing the variable, degrees of freedom used in the calculation, Wald chi-square score, and resulting level of significance. This resulting likelihood estimate determines the likelihood that the variable increases or decreases the likelihood of desistance. If the relationship is negative, a negative result indicates that the variable decreases the likelihood of desistance. Likewise, if the relationship is positive, a positive result indicates an increased likelihood of desistance. For example, using the number of prior revocations as the variable, a negative relationship is expected. A higher number of revocations should result in a decreased level of desistance

Odds ratio point estimates are then calculated for the variable being tested by exponentiating the likelihood estimate. The odds of increased or decreased odds of desistance are then calculated (p-1). A point estimate of .402, for example, results in a 59.8% decreased odds for desistance for the variable tested. Likewise, a point estimate of 1.5 results in an increased odds of desistance of 50%.

Finally, the area under the curve (AUC) is displayed under Association of Predicted Probabilities and Observed Responses. The AUC indicates the percentage of predicted probabilities accounted for using the variables tested thus far. As variables are added to the equation, the percentage will either increase or decrease, depending upon the strength of the variables to predict the outcome.

Step 2 and subsequent steps

The forward stepwise regression analysis repeats the above outlined steps until all variables eligible for entry have been tested.

Summary of stepwise selection

Finally, a summary of the selection is presented listing the all of the variables in the model that tested within the confidence level < .05 using Wald's Chi-Square and lists them in descending order.

Limitations

There are several limitations inherent to the current study. The sample includes person-to-person offenders including violent offenders, property offenders, drug offenders, and sex offenders. Data related to recidivism among these populations indicate that offenders within these categories offend at both different rates and offense types. For example, Durose, et al. (2014) reported that among the offenders released in the 30 states included in their study, within a five year period 82.1% of property offenders had been rearrested for new crimes, 76.9% of drug offenders, and 71.3% of violent offenders. Significantly, 36.8% of all offenders were rearrested within the first six months of release, and 56.7% arrested within the first year of release. This study controlled for person-to-person crimes and crime severity, but did not differentiate between sex offenders and non-sex offenders.

Edmonds & Kennedy (2013) outlined several external validity threats including treatment variations. Certain treatment variables not identified in this study might have impacted the results. Treatment variations are present because some of the subjects received treatment from different providers at different correctional facilities. Additionally, it is likely that some subjects received treatment as needed while on supervision during the three-year period examined. These variations are not accounted for in the study as no treatment variables were included in the final regression model, and this level of detailed data was not available to the researcher, as the ODOC does not maintain it in its central offender database.

Creswell (2009) described several threats to internal validity that might apply to this study. History and maturation threats may be present due to the period of time being examined, three years. During this period, confounding variables not known to the researcher may be present and influencing the results such as offender maturity, or an unknown personal relationship that influences the outlook of the offender. Creswell (2009) also noted regression threats caused by extreme scores of some of the participants. This might be mitigated by selecting only moderate scores, or by eliminating extreme scores from the sample. As noted, subjects who failed within 180 days of release from custody and those with detainers from other jurisdiction and immigration were deleted from the sample in order to reduce this threat. Detainers result in immediate arrest upon release and indicated immediate failure when, in fact, the failure was the result of the detainer and not the subject's actions while on supervision. The logic of deleting subjects who had failed within 180 days of release was that this population represented an outlier of the general sample and included the detainer group. It was also possible that subjects were arrested for detainers and/or active warrants that did not show up in the ODOC database and resulted in arrest of subjects within the 180-day range. The total number of subjects deleted that met the criteria for detainers or fewer than 180 days to failure was 107, or 3.7% of the total sample.

Bachman & Schutt (2011) defined the contextual effect as occurring when "…relationships among variables differ across geographic units like counties or across other social settings geographic or other social settings that cross" (p. 154). Oregon has 36 counties and a culturally diverse population. County of release was not included in the variables as this data reflects the at the majority of ODOC inmates release to the five most populated in the state; Multnomah, Clackamas, Washington, Marion, and Lane Counties. Cultural and socioeconomic

differences within these counties in relation to law enforcement and judicial practices might have influence outcomes. For example, rural counties might more readily arrest and prosecute an offender for lesser crimes than would a major population area. The reverse may also be true in rural counties where budget constraints have forced closure of jails or reduced jail space, as well as budgetary constraints on hiring law enforcement personnel. These contextual threats were not controlled for in this study and should be considered when interpreting the outcomes.

Chapter 4

Results

Sample size

As noted above, the original data set contained 2,855 subjects (observations) ages 25 to 30 that were released from custody between January 1, 2008 and December 31, 2010. Of the initial observations, 118 were deleted from the sample due missing age data. An additional 107 observations were deleted because the data indicated that they had been incarcerated within 180 days of release from custody. Finally, six were deleted due to unknown crime data, and seven were deleted for unknown race. The total number of excluded observations from these categories was 238. Data from 24 observations met more than one category for removal resulting in a final total of 2,641 observations included in the sample.

Desistance Frequency

Of the 2,641 individuals included, there were 906 who that met the criteria for primary desistance as defined for the study, or 34.3%. Conversely, 1,735 individuals met the criteria for failure as defined in the study, or 65.7%.

Variables Tested

Variables included in the forward stepwise regression analysis were as follows: Prior revocations; custody number; disciplinary report for drugs during incarceration; disciplinary report for order violation during incarceration; disciplinary report for person violation during incarceration; disciplinary report for property violation during incarceration; race (white/non-white); total days in general population; length of stay in prison months; mental health need; original crime type; original crime severity; person to person crime flag; percentage of earned time awarded; prior convictions; substance abuse need; release age.

Variables in the Final Model

As shown in Table 4, the following variables tested, listed in descending order of significance, as having a significant influence on criminal desistance at alpha level $p < .05$: prior revocations; prior ODOC incarcerations; race; original crime severity; substance abuse need; custody number; disciplinary report for order violation during incarceration; length of stay; person to person crime flag; percent of earned time earned; release age.

Analysis of Maximum Likelihood Estimates

The Analysis of Maximum Likelihood Estimates displays the results for the given parameters' (variables) ordered log-odds (logits) regression coefficients. "Standard interpretation of an ordered logit regression coefficient is that for a one unit increase in the predictor, the dependent variable level is expected to change by its respective regression coefficient in the ordered logit scale while the other variables in the model remain constant" (Institute for Digital Research and Education (IDRE), 2016, n.p.). As used in the current study, the log-odds regression coefficient defines the direction and value of the likelihood of desistance for each unit of the applicable variables. As shown in Table 1, for example, the log-odds coefficient for revocations is -0.5328. For each unit of revocation the probability of desistance decreases 53.3% (rounded up). The analysis also provides the standard error and corresponding Wald Chi-Square Statistic. The Wald Chi-Square test statistic is the squared ratio of the Estimate to the Standard Error of the variable being tested (IDRE, 2016). Lastly, Table 1 shows the likelihood of observing a Chi-Square statistic as extreme as, or more extreme than the observed null hypotheses (Pr>Chi-Square). Pr>Chi-Square is compared to the established alpha level for the test (>.05 for the current study). Again using Revocations as an example, Table 1 shows a Pr>Chi-Square p-value of >.0001. Because the p-value for revocations is lower than >.05, the

statistical significance of the Revocations coefficient is established and the null hypothesis is rejected.

Table 1

Analysis of Maximum Likelihood Estimates

Parameter	DF	Estimate	Standard Error	Wald Chi-Square	Pr>ChiSq
Intercept	1	-1.8685	0.7889	5.6097	0.0179
Custody Number	1	-0.4062	0.0905	20.1587	> .0001
DR Order	1	-0.0705	0.0178	15.7333	> .0001
Race/NW	1	0.03067	0.492	38.9122	> .0001
LOS	1	0.00936	0.00255	13.4541	0.0002
Sub 2 v. Sub 0	1	0.1616	0.0957	2.8492	0.0914
Sub 3 v. Sub 0	1	-0.573	0.0694	0.6809	0.4093
Sub 4 v. Sub 0	1	-0.5454	0.1066	26.1831	> .0001
Crime Severity	1	0.00187	0.000438	18.1607	> .0001
P to P	1	-0.2938	0.1140	6.6400	0.0001
Earned Time	1	0.0204	0.00938	4.7067	0.0300
Priors	1	-0.4730	0.0602	61.7841	> .0001
Release Age	1	0.0546	0.0275	3.9423	0.0471
Revocations	1	-0.5328	0.1099	23.5096	> .0001

Note. DF = Degrees of Freedom; Estimate = Log-odds coefficient. Sub 0 = no substance abuse need; Sub 2 moderate substance need; Sub 3 = severe substance need; Sub 4 = severe addictive need.

Odds Ratio Estimates

SAS uses odds ratio estimates to interpret independent variables in terms of proportional odds. The point estimate given for each variable is the proportional odds ratio for that variable, which is obtained by exponentiating the estimate (logit regression coefficient). Szumilas (2010) explained, "…the exponential function of the regression coefficient…is the odds ratio associated with a one-unit increase in the exposure" (n.p.). Szumilas (2010) provided the following guidelines for roughly interpreting odds ratios (OR): OR = 1 Exposure does not affect odds of outcome; OR < 1 Exposure associated with higher odds of outcome; OR >1 Exposure associated with lower odds of outcome. Using the independent variable Prior Revocations, for example, the odds ratio point estimate is 0.587. For each prior revocation the odds of desistance are 41.3% lower for subjects with prior revocations compared to those with no prior revocations. The Wald 95% Confidence Limits displays the confidence intervals for the independent variable given all other independent variables are in the model. If a variable has a confidence level of 95%, there is a 95% level of confidence that the true population proportional odds ratio lays between the lower and upper limits of the interval (IDRE, 2016). Using the same example of prior revocations, the Wald Confidence Limits are .473 to .728. These Confidence Limits indicate that the true population effect for the odds ratio given is between 47.3% and 72.8%.

Association of Predicted Probabilities and Observed Responses

SAS calculates the association of predicted probabilities and observed responses by first determining the percentage of observed responses in pairs that were concordant, discordant, and tied. The SAS program looks at all possible pairs of observations. A pair is concordant if the observation with the larger value of X (predicted value) also has the larger value of Y (actual value). A pair is discordant if the observation with the larger value of X has the smaller value of

Y. If a pair of observations is neither concordant nor discordant, it is a tie (IDRE, 2016). Of the 1,571,910 pairs in the current study 75.2% were concordant, 24.6% were discordant, and .2% were tied.

Table 2

Odds Ratio Estimates

Effect	Point Estimate	Wald 95% Confidence Limits	
Custody Number	0.666	0.558	0.795
DR Order	0.932	0.900	0.965
Race NW v. W	1.847	1.523	2.239
LOS	1.009	1.004	1.014
Sub 2 v. Sub 0	0.756	0.551	1.038
Sub 3 v. Sub 0	0.608	0.466	0.791
Sub 4 v. Sub 0	0.373	0.264	0.528
Crime Severity	1.002	1.001	1.003
P to P	0.745	0.596	0.932
Earned Time	1.021	1.002	1.040
Priors	0.623	0.554	0.701
Release Age	1.056	1.001	1.115
Revocations	0.587	0.473	0.728

Somer's D, The Goodman-Kruskal Gamma, Kendall's Tau-a, and c are then calculated using the concordant and discordant percentages listed above. Somer's D determines the strength and direction of relation between pairs of variables. Its range is -1.0 to 1.0 where negative one is

all pairs disagree and one is all pairs agree. "It is defined as $(n_c - n_d)/t$ where n_c is the number of pairs that are concordant, and n_d the number discordant, and t is the number of total numbers of pairs" IDRE, 2016, n.p.). In the current study the Somer's D value is .506. The Goodman-Kruskal Gamma does not penalize for ties and its values range from -1.0 to 1.0 where -1.0 is no association and 1.0 is perfect association. Its values are usually greater than those of Somer's D because it does not penalize for ties. The current study's Goodman-Kruskal Gamma value is .507. Kendall's Tau-a measures the ratio of the difference between the number of concordant and discordant pairs to the number of possible pairs. The Kendall's Tau-a value is usually much smaller than Somer's D because of the many paired observations with the same response. In the current study the value of Kendall's Tau-a is .228. The value of c ranks the correlation of ordinal variables and ranges from 0 to 1 where 0 is no association and 1 is perfect association. The value of c is generally referred to as the Area Under the Curve (AUC) or Receiver Operating Curve (ROC) and measures the strength of the model. For the current study the AUC value is .753, or 75.3%.

Table 3

Association of Predicted Probabilities and Observed Responses

Percent Concordant	75.2	Somer's D	0.506
Percent Disconcordant	24.6	Gamma	0.507
Percent Tied	0.2	Tau-a	0.228
Pairs	1571910	c	0.753

Summary of Stepwise Selection

As noted above, Table 4 shows the variables tested, listed in descending order of significance, as having a significant influence on criminal desistance at alpha level $p < .05$. These are the variables as listed in the final model of the Stepwise Regression Analysis. Table 4 displays each variable's Degrees of Freedom (DF), The rank at which the variable entered the final selection (In), the Chi-Square Statistic for each variable, and its corresponding Pr>Chi-Square p-value.

Table 4

Summary of Stepwise Selection

Variable	DF	In	Chi-Square	Pr>Chi-Square
Revocations	1	1	197.2712	> .0001
Priors	1	2	74.0008	> .0001
Race NW	1	3	64.0954	> .0001
Crime Severity	1	4	39.6345	> .0001
Substance Need	3	5	42.0181	> .0001
Custody Number	1	6	18.1990	> .0001
DR Order	1	7	17.9150	> .0001
LOS	1	8	15.0459	0.0001
P to P	1	9	8.5504	0.0035
Earned Time	1	10	5.3004	0.0213
Release Age	1	11	3.9473	0.0469

Effects for Final Model Variables

The effects for individual variables are given in descending order as they appeared in the Summary of Stepwise Selection in Table 4, and reviewed in relation to their respective Analysis of Maximum Likelihood data, Odds Ratio Estimates, and final order in the Stepwise Regression Model.

Effects for Revocations

As reflected in Table 1, the log-odds coefficient (Estimate) for Revocations was -0.5328, Standard Error of 0.1099, Wald Chi-Square statistic of 23.5096, and Pr>Chi-Square p-value of > .0001. The negative coefficient indicates that for each unit of revocation, there is a corresponding reduction in the probability of desistance of .532. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 0.587 with Wald 95% Confidence Limits of 0.473 and 0.728. The Point Estimate indicates that the odds of desistance are 41.3% lower for each unit of prior revocation compared to subjects with no prior revocations.

Revocations entered the Stepwise Selection (Table 4) at one with one degree of freedom, Chi-Square statistic of 197.2712, and Pr>Chi-Square p-value of >.0001.

Effects of Priors (Prior ODOC incarcerations)

As reflected in Table 1, the log-odds coefficient (Estimate) was -0.4730, Standard Error of 0.0602, Wald Chi-Square statistic of 61.7841, and Pr>Chi-Square p-value of > .0001. The negative coefficient indicates that for each unit of prior ODOC incarceration, there is a corresponding reduction in the probability of desistance of .473. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 0.623 with Wald 95%

Confidence Limits of 0.473 and 0.728. The Point Estimate indicates that the odds of desistance are 37.7% lower for each unit of prior ODOC incarcerations compared to those with no prior ODOC incarcerations.

Prior ODOC incarcerations entered the Stepwise Selection (Table 4) at two with one degree of freedom, Chi-Square statistic of 74.0008, and Pr>Chi-Square p-value of >.0001.

Effects for Race, Non-White versus White

As reflected in Table 1, the log-odds coefficient (Estimate) was 0.03067, Standard Error of 0.492, Wald Chi-Square statistic of 38.9122, and Pr>Chi-Square p-value of > .0001. The positive coefficient indicates that the probability of desistance is .03067 higher for White subjects as opposed to non-White subjects. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 1.847 with Wald 95% Confidence Limits of 1.523 and 2.239. The Point Estimate indicates that the odds of desistance are 84.7% greater for White subjects compared to non-White subjects.

Race entered the Stepwise Selection (Table 4) at three with one degree of freedom, Chi-Square statistic of 64.0954, and Pr>Chi-Square p-value of >.0001.

Effects for Crime Severity (most serious current offense crime severity rating)

As reflected in Table 1, the Crime Severity Estimate was 0.00187, Standard Error of 0.000438, Wald Chi-Square statistic of 18.1607, and Pr>Chi-Square p-value of > .0001. The positive coefficient indicates that for each unit of increase in crime severity rating there is a corresponding increase in the probability of desistance of .00187. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 1.002 with Wald 95%

Confidence Limits of 1.001 and 1.003. The Point Estimate indicates that the odds of desistance are .2% greater for each unit increase in crime severity rating. For example, the difference between the crimes of manslaughter in the first degree and criminally negligent homicide is115 units of severity, thus the odds of desistance for the he individual convicted of manslaughter would be 23% greater than the odds for the negligent homicide individual.

Crime Severity entered the Stepwise Selection (Table 4) at 4 with 1 degree of freedom, Chi-Square statistic of 39.6345, and Pr>Chi-Square p-value of >.0001.

Effects for Substance Need

Substance abuse needs 2, 3, and 4 (Sub 2, Sub 3, Sub 4) are individually compared to no substance abuse need (Sub 0) for Analysis of Maximum Likelihood Estimates and Odds Ratio Estimates, then combined for final analysis and determination of the Chi-Square statistic and Pr>Chi-Square p-value calculation. They are listed in ascending order where Sub 0 is no need, Sub 2 is the least severe need and Sub 4 is the most severe need. Table 1 indicates a decreasing probability of desistance as Estimates (coefficients) trend downward as substance need increases from Sub 2 (0.1616), Sub 3 (-0.573), and Sub 4 (-0.5454).

The downward trend observed in the Analysis of Maximum Likelihood Estimates is also observed in the Odds Ratio Estimates. Table 2 reflects Point Estimates, when compared to Sub 0. The odds of desistance for Sub 2 are 24.4% lower than Sub 0. The odds of desistance for Sub 3 39.2% lower than Sub 0. And the odds of desistance for Sub 4 62.7% lower than for Sub 0. These data indicate an incremental reduction in the odds of desistance as substance need increases from Sub 2 to Sub 4 when compared to Sub 0.

Substance need entered the Stepwise Selection (Table 4) at five with three degrees of freedom, Chi-Square statistic of 42.0181, and Pr>Chi-Square p-value of >.0001. The Pr>Chi-

Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

Effects for Custody Number

Custody Number reflects the number times a subject has been fully discharged from ODOC or other state parole. As reflected in Table 1, the Estimate was -0.4062, Standard Error of 0.0905, Wald Chi-Square statistic of 20.1587, and Pr>Chi-Square p-value of > .0001. The negative coefficient indicates that for each unit of increase in custody number there is a corresponding decrease in the probability of desistance of .4062. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 0.666 with Wald 95% Confidence Limits of 0.558 and 0.795. The Point Estimate indicates that the odds of desistance are 33.4% lower for each unit increase in custody number for subjects with prior parole discharges.

Custody Number entered the Stepwise Selection (Table 4) at six with one degree of freedom, Chi-Square statistic of 18.1990, and Pr>Chi-Square p-value of >.0001.

Effects for DR Order

This variable represents disciplinary reports (rule violations) that are related to the orderly operation of the institution. Examples include disrespect toward staff, contraband, and disobedience of an order. As shown in Table 1, the Estimate was -.0705, Standard Error of 0.0178, Wald Chi-Square statistic of 15.7333, and Pr>Chi-Square p-value of > .0001. The negative coefficient indicates that for each unit of increase in DR Order there is a corresponding decrease in the probability of desistance of .0705. The Pr>Chi-Square p-value of > .0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 0.932 with Wald 95% Confidence Limits of 0.900 and 0.965. The Point Estimate indicates that the odds of desistance are 3.5% lower for each unit increase in DR Order when compared to subjects with no DR Order violations. For example, an individual with 11 disciplinary reports odds of desistance would be 38.5% lower than for an individual with no disciplinary reports.

DR Order entered the Stepwise Selection (Table 4) at seven with one degree of freedom, Chi-Square statistic of 18.1990, and Pr>Chi-Square p-value of >.0001.

Effects for Length of Stay (LOS)

LOS is measured as total months in custody. Table 1reflects the Estimate was 0.00936, Standard Error of 0.00255, Wald Chi-Square statistic of 13.4541, and Pr>Chi-Square p-value of 0.0002. The positive coefficient indicates that for each month increase in LOS there is a corresponding increase in the probability of desistance of .00936. The Pr>Chi-Square p-value of 0.0002 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 1.009 with Wald 95% Confidence Limits of 1.004 and 1.014. The Point Estimate indicates that the odds of desistance are .9% greater for each month increase in LOS. LOS ranges from 12 (excluding earned time) months to 144 months for this cohort at age 30. To illustrate the impact of this difference, the odds of desistance for the individual serving 120 months would be 97.2% greater than for the individual serving 12 months.

LOS entered the Stepwise Selection (Table 4) at eight with one degree of freedom, Chi-Square statistic of 15.0459, and Pr>Chi-Square p-value of 0.0001.

Effects for Person-to-Person (P-to-P)

P-to-P reflects whether or not the subject was incarcerated for a person-to-person crime.

As shown in Table 1, the Estimate was -0.2938, Standard Error of 0.1140, Wald Chi-Square statistic of 6.6400, and Pr>Chi-Square p-value of 0.0001. The negative coefficient indicates that for subjects incarcerated for person-to-person crimes there is a decrease in the probability of desistance of .2938. The Pr>Chi-Square p-value of 0.0001 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 0.745 with Wald 95% Confidence Limits of 0.596 and 0.932. The Point Estimate indicates that the odds of desistance are 25.5% lower for subjects incarcerated for person-to-person crimes when compared to subjects not incarcerated for person-to-person crimes.

Person-to-person entered the Stepwise Selection (Table 4) at nine with one degree of freedom, Chi-Square statistic of 8.5504, and Pr>Chi-Square p-value of 0.0035.

Effects for Earned Time

Earned Time is measured as the reduction in time in percentages of the total original sentences. Table 1 reflects the Estimate was 0.0204, Standard Error of 0.00938, Wald Chi-Square statistic of 4.7067, and Pr>Chi-Square p-value of 0.0300. The positive coefficient indicates that for each percentage increase of Earned Time there is a corresponding increase in the probability of desistance of .0204. The Pr>Chi-Square p-value of 0.0300 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 1.021 with Wald 95% Confidence Limits of 1.002 and 1.040. The Point Estimate indicates that the odds of desistance are 2.1% greater for each percentage point increase in Earned Time. For example, the odds for an individual who is awarded 20% earned time are 42% greater than for an individual with no earned time awards.

Earned Time entered the Stepwise Selection (Table 4) at ten with one degree of freedom, Chi-Square statistic of 5.3004, and Pr>Chi-Square p-value of 0.0213.

Effects for Release Age

Release Age is measured in ascending order from age 25 to age 30. Table 1 reflects the Estimate was 0.0545, Standard Error of 0.0275, Wald Chi-Square statistic of 3.9423, and Pr>Chi-Square p-value of 0.0471. The positive coefficient indicates that for each year of age increase at the time of release there is a corresponding increase in the probability of desistance of .0545. The Pr>Chi-Square p-value of 0.0471 is lower than the study's alpha level of > .05 and the null hypothesis is rejected.

The Odds Ratio Estimate (Table 2) shows a Point Estimate of 1.056 with Wald 95% Confidence Limits of 1.001 and 1.115. The Point Estimate indicates that the odds of desistance are 5.6% greater for each year of increased age at time of release. For the age range of this study the odds for desistance are 33.6% greater for the 30 year-old subject when compared to the 25 year-old subject.

Release Age entered the Stepwise Selection (Table 4) at eleven with one degree of freedom, Chi-Square statistic of 3.9473, and Pr>Chi-Square p-value of 0.0469.

Chapter 5

Discussion

Introduction

The purpose of this study was to examine certain variables to determine the feasibility of predicting the likelihood of desistance from criminal activity among male offenders ages 25 to 30. The research question, can criminal desistance be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors was tested using forward stepwise regression analysis to determine which variables among those selected for examination were statistically significant at alpha level >.05. The following discussion will focus on the examination, interpretation, and qualification of those findings. Strengths and limitations of the study are addressed, and suggestions for further research in the area of desistance are offered. Since significant attention has been paid to desistance theory in this study, where applicable the findings are discussed in relation to age-crime distribution, social control, and personal agency.

Findings

Race

Sampson & Laub (2005) noted that there was evidence that race influenced the rate of desistance due to differences in structural contexts such as neighborhood and local crime rates. Farrell (2011) posited that racial differences influenced both criminal and desistance pathways noting differences in employment opportunity, neighborhoods, and socio-economic status among minorities.

The current study indicated that the odds of Whites desisting from crime were 87% greater than for non-Whites. This statistic is critical since the total male population of ODOC on

December 31, 2010 (end for the study's cohort) was 12,200 with a non-White population of 3,508, or about 29% (ODOC, 2011). According to the results of this study about one-third of those released from ODOC during the period tested had a significantly greater chance of supervision failure. The study did not specifically test for ethnicity or race type, but the high percentage of disparity for this variable might warrant further study and more detailed results, as the April 2016 population report indicated a 28.1% non-White inmate population for ODOC (ODOC, 2016). In other words, the percentage of non-White offenders being released from ODOC institutions has not significantly changed during the past six years. Absent desistance studies for this time frame, it cannot be inferred that the risk has remained the same for non-White offenders to fail supervision as defined in this study. Likewise, it cannot be inferred that the odds have improved for non-White desistance.

Given the significance of the findings of this study, further study regarding race and desistance to further explore variables that may have influenced this study's results could prove beneficial. For example, this study did not include geographic location of release, socio-economic status of subjects, or their specific race. Future study, especially using more recent cohorts, might help further inform the discussion regarding possible next steps to improve non-White offenders' odds for desistance.

Substance Need

Substance abuse needs listed in ascending order of severity were 2, 3, and 4. These levels were compared to substance abuse need 0, which represented no need. When compared to subjects with no substance need, the odds for desistance among the level two group were 24.4% lower when compared to the group with no substance need. This trend continued its downward desistance trajectory with each increasing needs level. The level three group odds were 39.2%

lower, and for level four the odds for desistance were 63% lower. These data support the previous literature regarding substance abuse and its relationship to criminal activity. The Bureau of Statistics (n.d.) data that 64.2% of the 1995 offender population reported that they had used drugs regularly at some point in their lives, and the 2004 report that 83% of prisoners had ever used drugs, becomes more relevant for Oregon in light of the current study's findings. This study did not include treatment variables, but Przybylski (2008) and Mulvey (2011) found that substance abuse treatment was successful in reducing substance abuse and criminal activity. Przybylski did not specify the time frame of substance abuser follow up, but Mulvey stated that treatment proved effective for the six months following release. The current study's time span of three years extends the time frame significantly and reinforces the finding of the above authors. Future studies should be substance abuse treatment specific and control for types and levels of treatment, as well as dosages.

Consistent with theories of agency and social control, Maruna & Immarigeon (2004) noted the effects of substance abuse on cognitive reasoning and social interactions. The authors stated that drug users tend to associate with other drug users, and that substance abuse deadens an already low fear of crime. Forrest & Hay (2011) monitored marijuana use to track criminal behavior and test for self-control. Their findings indicated that marijuana use was reflective of low self-control when other informal social control variables were controlled. Although the authors did not address how their findings related to personal agency, the research of Rocque (2014) might explain the elements of drug use as reflective of changes in psychosocial maturation and cognitive transformation. For Rocque, continued drug use into adulthood might be reflective of impulsive behavior and positive attitudes about deviance.

In terms of social structure, substance abuse appears to weaken informal prosocial community relationships and formal social structure institutions such as law enforcement, community corrections officials, and employers. Informal social controls such as family, spouse or partner, and ancillary prosocial relationships may also be damaged by substance abuse, especially severe addictive type. All of these factors would negatively influence the odds of desistance. The current study indicates that as substance abuse becomes more severe, the odds for desistance decrease. Intuitively, it seems that as substance abuse need rises, so to does the negative effect on the formal and informal social control mechanisms. Clarifying the relationships between substance abuse and social control might best be studied using qualitative methods that could ascertain the level of relationship damage caused by substance abuse and the effects on desistance. Given the level of effect of substance need and desistance, future study is warranted.

Age, Disciplinary Reports, and Earned Time

Release Age

As noted earlier, age is a common element in the theoretical discussions of desistance. Age at the time of release from custody entered the regression model at number 11, the last of the variables to test significant for influencing desistance. The Pr>Chi-Square score was .0471. This is a narrow margin of significance as the alpha level was set at >.05. It should be noted, however, that the odds ratio for this variable indicated that the odds of desistance are 5.6% greater for each year of age increase from age 25 at the time of release. The data indicates that as offenders age the odds of desistance increase. At age 30, therefore, the odds of desistance would be 5 times greater or 28%. The study limited the age of the subjects to 30 years, and it is not known from this data whether the trend for increased desistance would have continued in an

upward desistance trajectory for each year of age at time of release beyond 30. The significance of these data, however, may be recognized in light of the prevailing desistance theories as outlined above. The age-crime distribution school-of-thought recognizes the decreasing probability of criminal activity as offenders age and mature. Sampson & Laub's (1992) age graded informal social control theory posited that the aging process of offenders was accompanied by changing social and relationship influences. Personal agency as outlined by Rocque (2014) and Lloyd & Serin (2012) recognized age a factor in both maturation and cognitive ability to recognize and act on desistance influences.

This study has not attempted to draw inferences between the biological impacts of age and desistance, and will not do so now as it is outside of its scope. It is relevant, however, to note that the findings support the initial work of Hirschi & Gottfredson (1983) that crime distribution among age groups declines with age without consideration for other personal or social variables. This study included all levels of offenders released between January 2008 and December 2010, and with variables reflecting social control, crime type, and personal agency controlled, age maintained a level of significance. Additionally, given the increased odds of 5.6% for each year of age at the time of release up to age 30, it could be reasonably posited that future research extending the age range would result in a continued upward desistance trajectory when controlling for certain other variables.

Disciplinary Reports, Order

As noted above, Valentine, et al. (2015) found that age effect on misconduct was significant among both juvenile and adult offenders, with the offenders age 27 years and younger being the group most at risk. For the age group examined in this study the odds ratio for desistance decreased 6.8% for each disciplinary infraction related to prison order. While this may

not appear to be a significant increase, if an offender receives two disciplinary reports his odds for desistance have decreased 13.6%, five disciplinary reports and his odds have decreased 34%, and 10 disciplinary reports the odds have decreased 68%.

The work of Lloyd & Serin (2012) and Rocque (2014) may be used to infer a relationship between prison misconduct and personal agency. In terms of adult maturation and changes in attitudes toward deviance, Rocque posited that these changes might be evidenced by reduced aggression and impulsivity. Lloyd & Serin found that individuals who persisted in criminal activity had both negative desistance expectations and positive crime expectations. Taken together with the suggestion of Cochran, et al. (2014) that prison misconduct might be taken as a proxy for an individual's propensity to offend, the position of Lloyd & Serin that because offenders have opportunity to offend in prison, they also have the opportunity to abide by the rules and conduct themselves in a law abiding manner becomes more relevant to the discussion of personal agency. In other words, individuals who commit institutional rule violations have not realized a level of personal agency sufficient to allow them to either take advantage of prosocial opportunities, or refrain from impulse and aggression in order to act on the prosocial or positive structural influences of desistance.

The current study examined only the type of misconduct within a specified age group while controlling for other variables in the regression model. Additional study related to specific age, number and type of disciplinary infractions, demographic information, and related desistance data might help further clarify the effect of prison misconduct on desistance.

Earned Time

Earned time, or prison sentence reduction awards, is calculated by assessing an individual's participation in prison programming and the individual's prison conduct. The

current study found that for each percentage of earned time awarded, the odds for desistance increased 2.1%. Given that earned time is awarded in increments of 10% to a maximum of 20%, an individual might be awarded no earned time, 10%, or 20%. At 10% the individual's odds for desistance increase by 21%. Accordingly, if an individual is awarded 20% earned time, his odds for desistance increase to 42%.

Earned time may be viewed as the opposite of prison misconduct as it reflects both positive and prosocial behavior, as well as program engagement. Much of the same research used to support the antisocial and immature nature of prison misconduct might be used to support the prosocial and mature nature of individuals who are awarded earned time. For example, positive engagement and absence of disciplinary reports might be reflective of Lloyd & Serin's (2012) description of desistance effort as evidenced by negative crime expectancies and positive desistance expectancies. The current study's earned time results may also infer a relationship between positive prison conduct and Rocque's (2014) suggestion that adult maturation is evidenced by psychosocial maturation and indicated by future orientation and responsibility. The nature of awarding earned time is based on an individual's ability and willingness to act without impulse, refrain from rule or law violations, and engage in prosocial activity for the purpose of gaining a future reward of early release. As suggested above, age as it relates to maturity and cognitive transformation may also factor into the awards of earned time.

The current study did not attempt to specifically correlate earned time to variables of maturity or cognitive maturation and can only infer a relationship, here. Qualitative research such as that conducted by Maruna (2001) and King (2013) related to cognitive shifts that allow individuals to view themselves differently from their criminal past and focus on a prosocial or

future self might help further explain the relationships between cognition, maturation, prison conduct, and sentence reduction awards.

Crime Severity, Length of Incarceration, Person-to-Person

Crime Severity

The results indicated that for each unit of increase in crime severity rating, there was an increased odds of desistance of .2%. Recalling that there are 184 separate crime ratings covering 1031 crimes listed, an example using this result would be to compare a subject convicted of aggravated murder to a subject convicted of aggravated theft. The units of crime severity difference between the crimes are 305. The aggravated murderer would have increased odds of desistance of 61% when compared to the subject convicted of aggravated theft. These results support the previous findings of Bales & Piquero (2012) and Durose, et al. (2014) who found that property offenders reoffended at higher rates than violent offenders. Bales & Piquero further found that property offenders generally had higher rates of community supervision violations.

Because crime severity is one factor used to establish length of sentence, there may be a relationship between crime severity, incarceration length, and desistance odds. Determining if such a relationship exists could be useful in sentencing decisions when the objectives are to sentence for maximum public safety and rehabilitation.

Length of Incarceration

The current study found that for each month of incarceration there was an increased odds of desistance of .9%. To put this data into context, a subject incarcerated for 45 months would have increased odds of desistance of 29.7% when compared to a subject incarcerated for 12 months. These data appear to support the findings that higher crime severity ratings increase the

odds of desistance, but might conflict with the findings of Roach & Schanzenbach (2015) who suggested that lengthy incarceration might have a criminogenic effect on offenders.

Increased crime severity generally results in lengthier periods of incarceration and this would help explain the higher odds of desistance for the crime severity variable. But this suggestion appears to be in conflict with previous studies cited above. Although Roach & Schanzenbach (2015) argued that lengthy incarceration posed a threat to diminish the deterrent effect of prison, they cautioned that the optimal length of incarceration was unknown. On the other hand, they suggested that prison as an initial punishment might add to the deterrent effect due to psychological impact of imprisonment and offenders' access to prosocial programming. When viewed within the context of age and crime severity, the current study's findings appear to be more aligned with the argument that prison as an initial punishment enhances the deterrent effect. The current study did not test for age at time of conviction, but given the age range of 25 to 30 years old, a future study could posit that many of the subjects were relatively new to the prison environment and test for initial punishment and deterrence effect.

Although the number of subjects with prior incarcerations was not reported for this study, prior incarceration as a variable was found to have a significant influence on desistance.

Person-to-Person Crime

The odds of desistance for individuals convicted of person-to-person crimes were 25.5% lower than for those convicted of non-person crimes. This finding is of particular interest given the results for increased odds of desistance for higher crime severity and longer length of incarceration. It could be argued that person-to-person crimes have higher crime severity ratings and result in lengthier periods of incarceration and should, therefore, result in similar increased odds for desistance. Closer examination of this variable might reveal effects not accounted for or

controlled in the current study, however. For example, the data did not differentiate the level of crime severity for person-to-person crimes. The difference in crime severity units between assault in the second degree and assault in the fourth degree is 115 units. They are both person-to-person crimes, but have extreme distance between crime severity ratings. This difference impacts length of stay as the prison terms for lower person-to-person crime severity ratings generally warrant lighter sentences. Crime severity outcomes could become unclear because person-to-person crimes are viewed as violent crimes, which warrant a higher rating than they actually receive. The intuitive reaction is that an individual convicted of a person-to-person crime is a violent criminal who should be assigned a high crime severity rating and an accompanying lengthy sentence. This is not the case and such beliefs can lead to misinterpretation of data. Additionally, there might be data in the Level of Service/Case Management Inventory related to associates scores, family scores, or antisocial scores that influenced the outcome. Also, profiles related to the Personality Assessment Inventory scales such as aggression and dominance might reveal influences that could help clarify the differences noted in the current study. Additional study of this particular variable in relation to influences noted above seems necessary in order place person-to-person desistance odds into proper context.

Prior Incarceration, Prior Revocation, and Custody Number

Prior Incarceration

The odds of desistance for subjects with a prior ODOC incarceration were found to be 37.7% lower for than for subjects with no prior ODOC incarceration. The current study did not control for levels of supervision, community risk scores, or other variables that might have influenced how closely subjects were supervised. As noted above by Steen & Opsal (2007),

individuals with prior prison records are generally supervised at a higher risk level and supervision conditions may be harsher when compared to individuals without prior incarcerations. Harding, et al. (2013) pointed to the demographics of the highest percentage of repeat offenders being low socio-economic urban areas. Again, the current study did not control for socio-economic status or geographic location of release. As previously stated, low socio-economic conditions impact offenders' access to employment opportunities thereby weakening social structures both formal and informal.

Prior incarceration in relation to race was not tested in the current study, although previous studies have established a relationship between race and criminal recidivism (Durose, Snyder, & Cooper, 2015).

A discussion of prior incarcerations should include reference to prior criminal history, which this study did not test. Prior revocations and custody cycles, however indirectly address the issue of prior criminal history as both variables measure prior adjudicatory contacts with the criminal justice system.

Prior Revocation

The prior revocation variable is closely related to prior incarcerations but indicates previous failure on supervision. A prior incarceration may have resulted in successful completion of the conditions of supervision and subsequent discharge. The current study found that the odds of desistance were 41.3% lower for subjects with a prior revocation. Because revocations represent serious violations of the conditions of supervision or the presence of new criminal activity, they represent a significant barrier to desistance. Perhaps more than any other theoretic perspective, prior revocations are most closely related to personal agency. Prior revocations in combination with a current incarceration would indicate that at the time of criminal episode the

subject was a persistent criminal who had not moved away for what Paternoster & Bushway (2009) termed the working self. That is, the subject is still viewing himself as a criminal with criminal associates who still values a criminal lifestyle. In contrast, a subject with prior revocations might show evidence of movement from the working self to the possible or future self during incarceration by being awarded earned time, which would indicate the absence f disciplinary actions and the presence of some level of prosocial behavior.

Custody Number

Custody number presents a variable that counts the number of prior parole discharges, regardless of state. This is somewhat different from prior incarcerations or prior parole revocations in that it counts only custody cycles; a cycle being a completed adjudication, incarceration, and parole or post-prison supervision and counts these an event or cycle. The current study found that for each custody cycle, or custody number, the odds for desistance decreased 33.4%. Because this variable addresses the presence of one or more completed custody cycles it might be reflective of subjects at the extreme end of the age group, 30 years old. No data was collected which would verify this assumption and it should be viewed with caution. Given that criminal cycles in Oregon typically consist of the period of incarceration plus three years of community supervision, at age 30 subjects would have had opportunity to experience two or possibly three custody cycles, whereas those who were 25 at time of release might have had opportunity for one custody cycle and possibly two if convicted in criminal court as a juvenile. It is noteworthy that the odds against desistance for this variable are lower than either those for prior incarcerations or prior revocations, albeit smaller for prior incarcerations than for prior revocations. Still, this difference may reflect an age effect on the variable.

Like Prior revocations and prior incarcerations, custody number might be influenced by variables not included in this study such as geographic location of release and socio-economic status.

Limitations

A number of limitations related to this study have been outlined throughout this paper; however, there are several that deserve further discussion. The data sources for this study were the official records of the ODOC. While this data is reliable in reporting events such as prior revocations, custody numbers, crime types, certain demographic data, and crime severity ratings, other data such as disciplinary reports and substance need might be influenced by institutional and individual biases. For example, disciplinary reports are official adjudications of misconduct and hearings officers have the discretion to reduce a violation to a lower form of sanction based on the evidence and individual testimony. The threat in such cases is that the data does not accurately reflect the level of misconduct or the true number of violations. Likewise, substance need is determined using objective and subjective rating tools such as Level of Service, Case Management Inventory. While inter-rater reliability evaluations for this tool have begun, the final ratings have not yet been finalized or published. Baird (2009) cautioned that risk assessment tools that contained 20 or more subjective judgments had significantly lower reported validity than tools that relied more on static risk factors.

As noted above, the data for this study has been historically used for determining the risk of recidivism rather than the probability of desistance. Interpreting this data in a manner that was essentially the opposite of its intended function presented certain challenges that should be noted. For example, the discussion related to the intuitive interpretation of crime severity, length of stay, and person-to-person crimes pointed out that confusing crime severity with person-to-

person crimes could lead to misinterpretation of the findings that increased crime severity resulted in increased odds of desistance while conviction of a person-to-person crimes resulted in decreased odds of desistance. The variables in the database were designed to reflect risk and when viewed through the lens of recidivism they both represent a risk to recidivate. But when viewed in relation to one another, length of stay, and desistance, they appear to be in conflict. Several other variables presented similar issues and the results of this study should be considered in light of these data interpretation challenges.

There is a significant amount of data regarding the relationships between marriage or cohabitation and desistance. The current study intentionally did not include these variables. The data collected for marital status is primarily self-report or based on previous incarceration records and is received from inmates during the intake process. The data is not accurately or consistently updated throughout the subject's incarceration period so there is no reliable means of ensuring the accuracy of the marital status that exists within the official ODOC record. Given the significance associated with marriage and informal social control, the absence of this data in the current study limits its application.

The level of supervision while on post-prison supervision or parole was not controlled in the study. Level of supervision depends upon the subject's risk score at the time of release and can be high, moderate, low, and toward the end of the supervision cycle subjects might be unsupervised or placed on inactive status. Each of these levels determines the scrutiny with which subject's are monitored. According to Hyatt & Barnes (2014), offenders who were placed on intensive supervision based on their risk score offended at a slightly higher rate than those in the control group with similar high risk scores, but absconded supervision11.2% more, were incarcerated 12.3% more, and received 16% more technical violations than the control group.

For the current study, it is not known what impact supervision level might have had on violations. Since the study defined desistance as the absence of any violations including technical violations, the overall results should be viewed with this limitation in mind.

Finally, The study did not account for subject mortality or subjects who might have moved out of state on interstate compact status. Subject mortality, if not specifically accounted for, might be indicated as a false positive for desistance since there would be an absence of violations as defined for this study. Likewise, violations other than new arrests for subjects who were out-of-state on interstate compact would not be entered into the ODOC database. Like mortality, there exists the potential for false positive outcomes.

Recommendations for Future Research

This study was intended to examine variables that might best predict criminal desistance for the purpose of informing the development of a predictive tool for desistance. The study answered affirmatively the question of whether or not criminal desistance could be predicted using data generated by the ODOC related to prison programming, offender demographics, and certain other static and protective risk factors. Expanding on this research and enhancing its findings might be accomplished by further exploring the influence of community supervision levels on sanctioning practices. The findings of Hyatt & Barnes (2014) appear to have the potential to have a significant impact on desistance outcomes and such a study seems a logical next step in expanding the area of desistance research in Oregon.

A mixed method study using qualitative research related to the family support, marital status, number of children, number of visits and other informal social control elements within prison might add context to the data that is missing in this study. Such data combined with a tool similar to the Personal Outcome Expectancies for Desistance Scale developed by Lloyd & Serin

(2012), and results of the Personal Assessment Inventory could be instrumental in furthering the development of a predictive tool.

Lastly, expanding the age range to include subjects released up to age 35 years appears to be consistent with the age-crime distribution curve's indications that criminal behavior between ages 30 and 35 begins to level off before beginning a more noticeable decline and continuing a similar downward trajectory to age 50.

Conclusion

The primary purposes of this study were examine the feasibility of predicting the likelihood of desistance, informing an ongoing discussion for the development of a predictive tool for desistance, and contributing to the existing literature on desistance. To these ends, this study has reviewed the existing literature related to both the theoretical foundations of desistance, as well as the practical application of desistance theory where it currently exists. A forward stepwise regression analysis was used to determine the significance of selected variables in relation to their influences on desistance. It should be noted that this study was conducted using Oregon Department of Corrections' data, and within an organizational structure and culture designed to study recidivism rather than desistance.

Current practice is to use these variables to determine risk levels for recidivism. The current study hopes to inform a conversation toward the use of these variables to determine the probability of success and manage offender strengths where applicable, while still recognizing the need to manage risks.

Prison programming might be adjusted to enhance desistance if the tools to determine the likelihood of desistance were in place and could be applied at the time of intake thereby identifying individuals who would benefit by strengthening their existing protective factors with

programing designed to compliment desistance theory. Certain prison programming already exists that could be dual purposed to both serve risk management and strengthen protective factors. Substance abuse treatment has been found to increase the probability of desistance by removing barriers to informal and formal social controls and strengthening personal agency (Maruna & Immarigeon, 2004). Likewise, this same treatment has been found to reduce recidivism by decreasing criminal activity (Przybylski, 2008).

This study also found that the odds for non-Whites to desist were 84.7% lower than for Whites. Programming designed to address this disparity from a desistance prospective might involve a closer examination of the family and cultural strengths of minorities and work to enhance these consistent with desistance theory relating to informal social control. For example, using information from the findings of Sampson & Laub (1990, 1992, 2003, 2005), Farrall, et al. (2010), and Cid & Marti (2012), prison programming could be adapted to aggressively promote family visiting, cultural awareness seminars for inmates and families, marriage workshops, and parenting classes. While these measures would likely benefit all inmates, the findings of this study would indicate that non-White inmates should be specifically targeted for such programs with the objective of increasing their odds for desistance.

Polaschek & Yesberg (2015) suggested that long prison terms could act as turning points by offering offenders momentum for taking the initial steps toward desistance. This study has partially supported their suggestion by finding that there is an increased odds for desistance with each month of incarceration. With adequate desistance based programming incarceration could become a significant turning point in the life-course of many offenders. By closely examining the variables that influence desistance, both positively and negatively, real time adjustments could be made in offender programming that might influence their odds for desistance. Realizing

that the accumulation of disciplinary reports is a negative desistance indicator could prompt interventions designed to positively influence attitudes toward prosocial behaviors. Understanding the significance of earned time awards could improve in-custody rewards to further enhance attitudes related to the benefits of deferred gratification, the future self, and desistance.

The works of Rocque (2014) and Lloyd & Serin (2012) in understanding maturation domains and desistance beliefs were attempts to conceptualize and operationalize desistance theory related to personal agency, social control, and age. The current study has found desistance influences in variables related to each of these theoretical domains and recognized the need for additional research to further clarify the many questions raised by examining prison influences on desistance.

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