

6-28-2017

Prison Programming and Recidivism as a Method of Social Bond Theory: A Meta-Analysis of Research from 2000-2015

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PRISON PROGRAMMING AND RECIDIVISM AS A METHOD OF SOCIAL BOND

THEORY:

A META-ANALYSIS OF RESEARCH FROM 2000-2015

A Capstone Project Presented in Partial Fulfillment
of the Requirements for the Degree Bachelor of Arts with
Honors College Graduate Distinction at
Western Kentucky University

By

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May 2017

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I dedicate this thesis to my mom, Jennifer Worden, for her endless support and love.

ACKNOWLEDGMENTS

First and foremost, I would like to extend a heartfelt thank you to my thesis advisors, Dr. Drummond and Dr. Vasiliev. This thesis was only possible due to your advice, assistance, recommendations, and constant support. I would also like to acknowledge Dr. Faine for his contribution of expertise in statistics. Additionally, I would like to thank all the professors that I have had at WKU for giving me the foundation to write a thesis. Finally, thank you to my friends and family who have supported me throughout this process.

ABSTRACT

Prior research indicates that completion of prison programs significantly decreases recidivism amongst offenders. This research classifies prison programs as an aspect of Social Bond Theory to determine if these types of programs improve the recidivism rate. Social Bond Theory has four elements: commitment (time invested into education or career), attachment (relationships with family and friends), involvement (time spent in activities outside of crime), and belief (agreement with social norms). Research articles were compiled from 2000-2015, published and unpublished, with a three year recidivism rate or less (several exceptions were made), and a sample size of greater than 50. An odds ratio meta-analysis was performed to statistically strengthen the data and prove significance. This research is beneficial in quantifiably showing that social bond oriented prison programs reduce recidivism. Therefore, more programs can follow this model and result in more permanent releases from prison. This can lead to lowered prison populations, less government spending on prisons, and improved community and familial relations.

Keywords: prison program, recidivism, social bond theory, meta analysis, rehabilitation, odds ratio

VITA
FIELDS OF STUDY

EDUCATION

Western Kentucky University, Bowling Green, KY May 2017
B.A. in Psychology and Criminology– Mahurin Honors College Graduate
Honors Capstone: *Prison Programming and Recidivism as a Method of Social Bond
Theory: A Meta-Analysis of Research from 2000-2015*

Franklin High School, Franklin, TN May 2013

AWARDS & HONORS

Summa Cum Laude, WKU, May 2017

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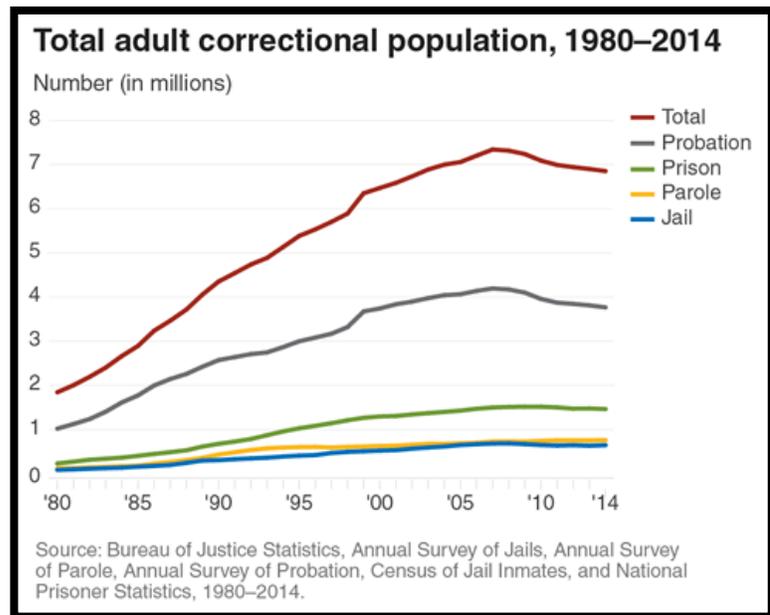
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INTRODUCTION

In 2014, 2,224,400 individuals in the United States were incarcerated in jail or prison. An additional 4,708,100 individuals were on probation or parole. This is a total of almost 7,000,000 people; an increase of approximately 272 % from 1980 (Bureau of Justice Statistics, 2016).

Those involved in the system make up almost 3 % of the approximate 248,000,000 adults in the United States (Population, 2016). These rates show that the United States holds greater than 20 % of the prisoners in the world, yet America only has 5 % of the population (Campbell & Schoenfeld, 2013). This means that a large portion of the American and world's population will

be released back into society after involvement with the correctional system. Frequently, aspects of these individuals' lives will interfere in their release and they will recidivate. While there are many factors that contribute to recidivism amongst offenders, the end result is that two in three



individuals released will be rearrested within three years (Cooper, Durose, & Snyder, 2014).

These rates are a widespread problem in the justice system, requiring significant funds, exceeding maximum capacity within institutions, and negatively impacting families. The average cost for a single Federal inmate in the year 2014 was \$30,619.85 or \$83.89 per day (Bureau of Prisons, 2015). Incarcerating a prisoner is approximately eight times more expensive than placing them under released supervision, such as probation and parole. The cost of a probation

officer supervising a released offender annually is \$3,347.41, or \$9.17 per day (United States Courts, 2013). Prison overcrowding has been a consistent issue, originating in the 1970s. Overcrowding results in poor living conditions for the inmates and strains upon those in command. Yet, there is a reluctance in the United States to consider alternate sentencing; a reluctance which leads to excessive incarceration (Griffin, Pitts, Johnson, 2014). Furthermore, the community is impacted as the continued absence of a parent or guardian can detrimentally affect children's school work. These repercussions can be seen in graduation rates, in the work force, and in future incarceration rates (Reckdahl, 2015). An additional consequence is the reduction of unemployment for the individual. Large incarcerated populations are harmful to the nation's finances, prisons, and communities. Therefore, measures must be taken to ensure that those who are released remain released.

Americans hail the prison system as a method of deterrence, incapacitation, retribution, and rehabilitation. The establishment of corrections itself is intended to protect and reform the members of their communities. Individuals are expected to enter prison, understand what they did was wrong, alter their behavior, and reenter society as a better person (Benson, 2003). These steps unfortunately are not always an accurate representation of the process of incarceration. As of 2002, 39 % of inmates incarcerated in jail had at least 3 prior convictions. Additionally, 46 % of the inmates who recidivated were nonviolent offenders (James, 2004). Attempting to achieve rehabilitation in a prison setting is likely an unachievable goal. As the recidivism data indicates, nearly one in every two inmates is unable to achieve rehabilitation, and instead they return to their former behavior upon release.

Having pointed out the failure to achieve rehabilitation, the purpose of prison programs is to reduce recidivism and prepare inmates to reenter the community. Not only do programs lower

re-arrest and re-incarceration rates, but some can also lower the time commitment of inmates (Indiana Department of Corrections, 2016). This incentive can result in lower prison populations, as the inmates will be released earlier than sentenced. Unfortunately, prison programs are not profitable for the prison and thus frequently cut to save money (American Federation of Government Employees, 2016). These budget cuts are a prominent reason as to why research on prison programs must be conducted. Without statistical proof of their effectiveness, they are vulnerable to budget cuts. It is imperative to identify which programs are more effective in reducing recidivism. This meta-analysis examines the efficiency of prison programs based on characteristics derived from Hirschi's Social Bond Theory. Social Bond Theory proposes that the stronger the bond to attachment, commitment, involvement, and belief, the less likely an individual would be to commit a crime (Hirschi, 1969).

HISTORY OF PRISONS

Upon the founding of America, prisons were a necessary element for structure within the country. The aim was to protect the citizens from the criminals by separation (incapacitation) and to ensure punishment (retribution) of the offender (Barnes, 1921). The concept of incapacitation continued into the Pennsylvania System which began at the end of the 1700s and was characterized by solitary confinement and reflection. The aim of the Pennsylvania System was to encourage religious conversion, concentration, and moral adjustment (Brooks, 2015). By the mid-19th century the penal system had evolved into the Auburn prison system, which endorsed inmates practicing hard labor (Brooks, 2015; Barnes, 1921). This practice continued for many years but began to fade as the next approach to handling prisoners started. This was a subtle attempt at rehabilitation at the Elmira Reformatory, which led the change from solitary confinement and labor to facilities designed to correct the behaviors of the offenders through

education and physical training (Zebulon, 2016). By 1945, the United States had begun to take a more firm rehabilitative approach (Brooks, 2015). Unfortunately, efforts towards rehabilitation were effectively diminished when Robert Martinson published an article in 1974 which the public interpreted as “Nothing Works,” or that rehabilitative efforts are wasted (Sarre, 2001). This supposedly empirical evidence contradicting the effectiveness of rehabilitative programs led to a period of time focused more upon punishment and incapacitation (Brooks, 2015; Sarre, 2001).

In the late 1900s, the political pendulum swung toward a “tough-on-crime” approach. This view entered America into an era characterized by mass imprisonment, which came with mandatory minimum sentencing, and the Three Strikes rule (Campbell & Schoenfeld, 2013). Mandatory minimum sentences are strict guidelines for punishment based upon a generic crime. Mandatory minimum laws remove the discretion that judges hold in determining sentences based upon mitigating and aggravating sentences. (What, 2016). The Three Strikes policy was enacted under the Violent Crime Control and Law Enforcement Act of 1994. This policy allows individuals to be convicted and sentenced to life imprisonment for three violent or serious drug offenses (Sentencing, 1995). This immediate punishment of lengthy sentences is leading to high rates of incarceration which puts a significant strain on the facilities and finances (What, 2016). The extensive sentences appear to show that offenders are beyond saving and do not deserve rehabilitation (Campbell & Schoenfeld, 2013). The history of prisons has varied dramatically over the past three centuries, yet still needs to focus upon rehabilitation and lowering recidivism rates. There is potential that Social Bond Theory could contribute to lowered recidivism rates and a more effective prison term.

LITERATURE REVIEW

Recidivism Rates

Recidivism is defined as the return to the criminal justice system after being released from imprisonment. Recidivism operates under multiple definitions throughout research, therefore there is wide variation amongst the measures of recidivism. The measure can be rearrest, reincarceration, or reconviction. This variation causes difficulties because the concept is then drastically changed. For instance, rearrest merely indicates that the individual was arrested. Not that they were found guilty, nor incarcerated. Therefore, some studies may have a higher recidivism rate because more participants were arrested than were ever incarcerated and vice versa. The length of time can be one year, three years, five years, ten years, or another amount. Depending on the time frame set forth, a researcher can either over-represent the effect of a program (i.e., short period of time) or under-represent the effect of a program (i.e., the longer the time period, the more participants will have had a chance to recidivate). This variation limits comparative research in its ability to accurately draw conclusions, as there is little consistency (Fazel & Wolf, 2015; Byrne, Goshin, & Henninger, 2013; Bales & Mears, 2008).

These difficulties in comparison and manipulation of measurements were evident in Fazel and Wolf's (2015) study that attempted to compare approximately 20 countries' recidivism rates against each other. Due to varying definitions between the record keepers, the authors were not able to compare the countries directly, but were able to ascertain their recidivism rates as reconviction rates. Focusing on statistics from 2005 to 2010 in the U.S., the recidivism rate was at 23 % by one year and continued to rise to 45 % at three years, and 55 % 5 years post-release.

In some cases, the type of crime influences the recidivism rate. According to Cooper, Durose, & Snyder (2014), property offenders have a recidivism rate of 82.1 % in the first five

years after release. Drug offenders have a recidivism rate of 76.9 %, while public order offenders have a recidivism rate of 73.6 %. Finally, violent offenders have a recidivism rate of 71.3 %. Property offenders have consistently shown that they are the least likely to alter their behavior upon release. The authors also noted a trend that as the offender ages, their five year recidivism rate decreases. These statistics indicate that release is approximately a three in four chance of being returned to prison within five years. These data show that some crime's recidivism rates may not be affected by prison programming.

Hirschi's Social Bond Theory

In an attempt to explain criminal offending, Hirschi (1969) proposed a theory that examined the connection between strong bonds and the likelihood to deviate. This Social Bond Theory operates from the assumption that all humans are inclined towards deviance or criminal activity, but can be controlled through the use of social bonds (Tibbetts & Hemmens, 2015). These social bonds are characterized by attachment, commitment to, involvement with, and belief shared by "prosocial" individuals. Hirschi's Social Bond Theory states that those who have strong attachments to society are less likely to violate the norms of society. Attachment refers to the emotional bond between a person and their friends, families, and peers. Commitment is the investment (time and effort) already spent on future goals that can be lost through criminal activity. Involvement is the time spent in activities outside of crime. Finally, belief is the acceptance of conventional ideas and thoughts (Chriss, 2007).

Tibbetts and Hemmens (2015) state that the most important social bond is that of attachment. Attachment is necessary to internalize the norms of society and to develop a conscience to control oneself (Hirschi, 1969). It can be argued that the other aspects: commitment, involvement, and belief are purely contingent upon the attachments the individual has.

Commitment is the measure of what could be lost by deviating from the social norms. Commitment can take the form of education, work experience, and pursuits of other conventionally accepted avenues (Tibbetts & Hemmens, 2015). Hirschi (1969) believed that active involvement in conventional activities would equal less delinquency. By completing other activities, that individual's time cannot be spent in delinquency. Belief is consistently likened to moral beliefs in accordance with the law and society. This refers to whether an individual views an action as immoral or not (Tibbetts & Hemmens, 2015).

Hirschi (1969) conducted a study to test his theory of Social Bonds. This test was performed upon males participating in the Richmond Youth Project that were selected from a random stratified sample. The sample consisted of 3,605 adolescents and aimed to study the impact of attachment, commitment, involvement, and belief. Hirschi drew his conclusions that attachment is primarily important and that involvement was less impactful (Kempf, 1993; Hirschi, 1969).

Hirschi's Social Bond Theory has been criticized by others and even revised by Hirschi himself (Gottfredson & Hirschi, 1990; Tibbetts & Hemmens, 2015). A common criticism of Social Bond Theory is that the elements vary widely based upon the definition applied. This can be seen as whether the attachments made are prosocial (i.e., mentors) or if the attachments are detrimental (i.e., drug dealer), or the involvement is with religious pursuits or after-hours fun. Additionally, Social Bond Theory does not account for continued deviance. Therefore, Social Bonds can be a predictor of whether an individual will deviate but not of continuance or escalation. Therefore, prison programming following Social Bond Theory may predict deviation from the social norm upon release. Social Bond Theory remains a prominent criminological theory in spite of the criticisms (Tibbetts & Hemmens, 2015).

After an exhaustive literature review, no research articles were found that approach prison programs through the lens of Social Bond Theory. Therefore, no outline currently exists dividing programs into the separate factors of Hirschi’s Social Bond Theory. Programs will be classified into the four elements of Social Bond Theory based upon application of the definitions in this study. Attachment will be programs that promote the connections between incarcerated individuals and their family, loved ones, or peers (i.e., nursery programs, father/child book programs). Commitment will be defined as invested effort and time into a societally accepted skill (i.e., post-secondary correctional education, GED programs, vocational training). Involvement will be programs that occupy an offenders time (i.e., sports, animal training, gardening). Belief will be programs focused upon altering the perception of the inmate to a socially accepted view point and/or religious belief (i.e., drug rehabilitation, religious programs, community therapy). The characteristics each category was divided into can be found in Table 1.

Table 1: Category Characteristics

Category	Characteristics	Examples
Attachment	<ul style="list-style-type: none"> • Relationship building • Connection to important individuals 	<ul style="list-style-type: none"> • Prison Nurseries • Daddy Skills Programs
Commitment	<ul style="list-style-type: none"> • Investment in education • Investment in career advancement 	<ul style="list-style-type: none"> • Post-Secondary Education • GED programs • Vocational training • Career licensure
Involvement	<ul style="list-style-type: none"> • Extended time periods in program • Time in personal improvement 	<ul style="list-style-type: none"> • Animal training • Gardening programs

Belief	<ul style="list-style-type: none"> • Focus on moral beliefs • Acceptance of societal norms 	<ul style="list-style-type: none"> • Religious programs • Therapeutic groups • Drug rehabilitation
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Attachment

Attachment is considered the most important factor of Social Bond Theory (Tibbetts and Hemmens, 2015; Hirschi, 1969). Attachment appears in many forms amongst the prison programming present today. It is evident in prison nursery programs (Byrne, Goshin, & Henninger, 2013), allowed visitation (Bales, & Mears, 2008), the Responsible Fatherhood Program, and the Prevention and Relationship Enhancement Program (Indiana Department of Corrections, 2016). All of these programs promote a stronger relationship with the people in their lives. Attachment is significantly associated with lowered recidivism rates upon completion of programs (Byrne, Goshin, & Henninger, 2013; Bales & Mears, 2008; Indiana Department of Corrections, 2016).

The attachments between a mother and her child have been detrimentally impacted due to the dramatic increase of women in the correctional system. From 1980 to 1995, the population of women within prisons increased by 500 %, resulting in approximately 1 in 109 women in the United States being incarcerated (Vainick, 2008). Attachment is formed at young ages for parents and children. A child requires the parent in the first few years of life to learn how to develop attachments and how to handle other people. The infancy is the strongest point of attachment for parents, in which they need to spend time with the child and with their significant other, or other strong family members (Parkes, Hinde, & Marris, 1991). Borelli, Goshin, Joestl, Clark, and Byrne (2010) completed a study analyzing mothers in prison nursing programs. The

authors issued a survey called the Adult Attachment Interview at the beginning of the program and after release. They found that mothers in prison display insecure attachments at higher rates in comparison to those from the community samples. Mothers who were more secure in their attachments were more likely to be confident in their parenting skills.

Byrne, Goshin, and Henninger (2013) studied a mother's nursery program in which the mother was allowed to keep the infant with them within the prison. Upon release, the women were informed of parenting techniques and ways to help them with their child. This strengthened attachment to the child led to only a 14 % recidivism rate amongst the women who were released. Many of the women studied had had multiple convictions, stints within jail or prison, and already had one or more children. Therefore, the ability to bond with the child in infancy led to a significantly reduced recidivism rate. The attachment between the mother and child will benefit both of them as the child grows and becomes a member of the community.

As programs exist for mothers, they also exist for fathers. Attachment exists in many forms beyond the spatial closeness shown in the mothers nursing programs. A program named Breaking Barriers with Books intends to strengthen the bond between father and child. This program allows the father to be an active participant in the child's life and for the child to form memories with the father (Genisio, 1996). A separate program found that one group participating in the book program had a recidivism rate of 49 %, while the second group had a recidivism rate of 27 %. These were in comparison to the regional recidivism rate of 80 %. Additionally, the fathers had fewer behavioral issues while incarcerated (Muth, 2006).

Although not a program, Duwe and Clark (2013) examined visitation frequency in relation to recidivism rates post-release. Prisoners who were visited and maintained their social bonds while in prison were significantly less likely to recidivate within the first year. The authors

broke the type of visitor into separate categories and then reviewed the results. A mentor visiting the offender resulted in a reduced chance of reconviction by 29 %. While other types also lowered the risk of reconviction, it was by a smaller amount than a mentor: clergy (24 %), in-law (21 %), sibling (10 %), relative (9 %), and a friend (7 %). This shows that attachment is a significant contributor towards lowered recidivism. Therefore, programs that are focused upon attachment will likely lower the recidivism rate.

Commitment

Commitment dominantly takes the form of post-secondary education or vocational skills training within a prison programming environment. Education qualifies as commitment because the offender is investing time and effort into a conventional achievement that will be beneficial to themselves in normal society. Education is frequently found to lower recidivism rates (e.g., Kelso, 2000; Brooks, 2015; Vacca, 2004; Hull, Forrester, Brown, Jobe, & McCullen, 2000; Chappell, 2004). Education was an element commonly missing amongst the prison population in the late 1980s and early 1990s as nearly 80 % of inmates were high school drop outs (Stephens, 1992). This statistic allows education to be a ripe opportunity to demonstrate commitment within prisons.

Kelso (2000) conducted a study comparing two correctional education programs recidivism rates against the rates of Washington State. The average recidivism rate listed for Washington was 30.9 % and was defined as those who were returned to a correctional facility from either a new offense or a violation after having been released. The first correctional program at Garrett Heyns Education Center resulted in an average recidivism rate of 14.3 % ($p = .0006$), calculated to be a reduction of 53.7 % in recidivism. The second program at the Twin

Rivers Correction Center boasted a low recidivism rate of 10.8 % or a reduction of 65 % which was found to be significant.

Brooks (2015) investigated the rates of recidivism in relation to earning an Associate's Degree, Bachelor's Degree, and a Master's Degree from a compilation of post-secondary correctional education programs in Texas. The general Texas recidivism rate was found to be an average of 48.4 %. Brooks results were significant at $p = .05$ and found that as education level increased the recidivism rate decreased drastically. The subjects who had earned a Master's Degree never recidivated (0.0 %), while those with a Bachelor's Degree had a percentage of 5.6 %. An Associate's Degree had a recidivism rate of 13.7 %. These results show that furthering education continues to decrease the recidivism rate.

Vacca (2004) analyzed the effect of correctional education based upon the impact it has on the prisoners as well as the recidivism rate. He claims that educational programs that focus upon teaching offenders how to read and write can contribute to lowered violence in the prison population. Additionally, prisoners were motivated to participate when they could see a clear benefit to themselves. He clarifies the issues that commonly arise amongst prison populations: negative views of education, and the inconsistent schedule that arises from constant lockdowns and meetings with lawyers. These issues must be addressed in order to strive for fulfilled commitment. Finally, Vacca discussed the continuance of studies showing that recidivism rates have been lowered upon completion of correctional education programs.

As commitment can be seen in education, it can also be seen in work programs for experience. Duwe (2015) explored the impacts of work release programs in prison on the recidivism rate and other post-release factors. This study took place in Minnesota and found that the work release program significantly reduced the recidivism by 16 % (rearrest), 14 %

(reconviction), and 17 % (new crime reincarceration). Despite the positive effects on recidivism for rearrest, reconviction, and reincarceration, the work release program had a negative effect upon technical violations resulting in release revocation. The risk was elevated by 78 % in comparison to those who did not complete the work release program. Duwe went on to analyze the rates at which released offenders received employment after prison. Participation with the work release program created an eight times greater likelihood to receive a job. The high rates of employment upon completion of this program and release exemplifies the rewards to offenders of a commitment-based prison program.

Wilson, Gallagher, and MacKenzie (2000) compiled a meta-analysis covering programs that involve education, vocational training, and work programs. All aspects of their study firmly follow the definition of commitment. The authors were able to include 33 studies that composed their results in recidivism rates. They assumed a consistent 50 % recidivism rate for the offenders who were not in the program. The participants in these various programs were found to have a recidivism rate of 39 % and was statistically significant. The researchers believe that the results may show causality, but all other explanations had not been ruled out. The power of these correctional education and work release programs are evident in the results of recidivism rates (Kelso, 2000; Brooks, 2015; Vacca, 2004; Duwe, 2015; Wilson, Gallagher, & MacKenzie, 2000). All of the programs that function with commitment have shown to have a considerable impact upon the number of people being released from incarceration. These commitment programs promote recidivism by providing life skills beneficial to them upon release.

Involvement

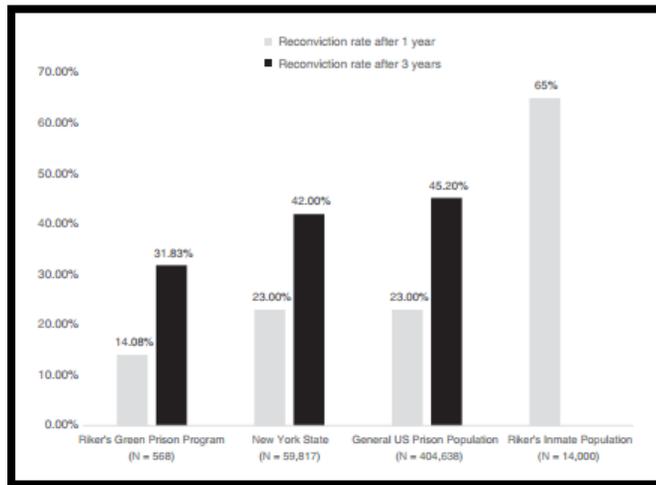
Involvement covers a wide variety of programs that occupy the prisoner's time. There are a plethora of animal related prison programs: Dog/Cat Rescue Projects, Indiana Canine

Assistant, Prison Tails, Thoroughbred Horse Retirement (Indiana Department of Corrections, 2016), and wild horse training (Lloyd, 1997). Involvement also ventures into sports, bike repair, and gardening (Indiana Department of Corrections, 2016; Pudup, 2008). However, involvement does not include vocational or educational programs. Involvement is merely an investment of time, but is not necessarily gaining experience or knowledge applicable after release.

In Colorado, a program was started in the 1990s to allow prisoners to aid in the taming and training of wild horses. The prisoners must wake up at dawn and spend large portions of their day with the horses. After completion of the wild horses program, 45 % of offenders recidivate, as opposed to the then current rate of 75 %. Not only has the recidivism rate drastically decreased, but the stallions are sold after the training process. The prison hosts an auction for the horses and the profits go to the prison. In 1996, the program earned over \$50,000 (Lloyd, 1997).

Walsh (2009) cites human-animal bonds as an important aspect of culture and current research. These animal bonds are occupying the prisoners time and allowing them to form a relationship with the animals (Walsh, 2009; Lloyd, 1997; Strimple, 2003) Project Pooch was started with the intent of helping prisoners while saving animals (Strimple, 2003). Merriam-Arduini (2000) claimed a recidivism rate of zero for the participants of Project Pooch (Strimple, 2003). Deaton (2005) analyzed a wide variety of human-animal bond programs. She found multiple rescue dog and rescue horse programs. In New Mexico, a wild mustang program led to a recidivism rate of 25 % compared to the average for New Mexico of 38.12 %. Additionally, the participants had fewer disciplinary reports.

Within the past few decades, garden programs in prisons have begun to appear and spread. Garden programs have been described as “eco-therapy to prisoners – which is prescribed physical and psychological therapy through nature-based methods” (Linden, 2015, p. 338). Programs, such as this, offer an opportunity for the prisoner to be removed from the stressful environment in



Gardening Program Recidivism in New York (Van Der Linden, 2015)

which they live. Involvement within these programs promotes prosocial behaviors. Linden (2015) analyzed the recidivism rates of offenders who completed a garden program in Riker’s Prison to those of the general American prison population and found that the green program had a 31.83 % recidivism rate compared to the nation’s 45.20 % recidivism rate. The author notes that similar findings were found across the United States in green prison programs.

Sports are often played in recreation time in prisons and occasionally the prison has teams set up as intramurals for the offenders to partake in. Boxing is a sport that was instituted as a program in a Thai prison. Beech (2008) explains the story of Sampson, a female boxer who won a title while in prison and earned an early release. According to officials in Thailand, those released after the boxing program had a nonexistent recidivism rate compared to Thailand’s national 10 % rate. Additionally, members of the boxing program lack outward aggression and are deferential to the others training. These involvement programs allow the inmates an opportunity to focus on something other than their former crime or future criminal actions.

Belief

Belief is a difficult aspect of Social Bond Theory to measure as it does not have a tangible aspect. A person's belief cannot be measured by time spent in an activity, a certification earned, or examining their relationships. Rather, belief must be measured as a program intending to alter a person's perception on crime and the justice system. Therefore, belief can take the form of drug rehabilitation, therapeutic communities, religion, and/or informative programs about police and the law (Indiana Department of Corrections, 2016; Bates, Falshaw, Corbett, Patel, and Friendship, 2004).

Bates, Falshaw, Corbett, Patel, and Friendship (2004) developed a study analyzing the recidivism rate of sex offenders who participated in the Thames Valley Groupwork Program. The program offered treatment while in prison and then followed the released offenders. Ten men from the study (5.4 %) were convicted for another crime after release. An additional 2 men (1.1 %) committed another offense but had not been convicted yet. Finally, another 17 men (9.2 %) recidivated. These statistics were favorable in comparison to the normal recidivism rates of sex offenders, but later data showed that more continued to offend as time went on. This was explained by the tendency of sex offenders to wait longer periods of time to reoffend than non-sex offenders.

Johnson, Larson, and Pitts (1997) took a different approach to rehabilitation of prisoners by studying a Prison Fellowship Program. Religion instills a set of morals that are to be followed by the congregation, which is attempting to instill belief amongst the prisoners. This religious activity had the most participation at the prison studied. The researchers used a matched comparison group to ensure the best results. Participation in this program was measured through attendance for Bible studies. Mere participation in the group did not have any significant effect

upon infractions or recidivism, as the rates were approximately equal to those who did not participate. Although, when viewing the attendance rates, the highest attendees had the lowest recidivism rates which was found to be significant. Those who attended frequently had a 14 % recidivism rate against the 41 % of the non-program offenders.

Drug rehabilitation is common amongst inmates as the majority of State (70 %) and Federal (64 %) inmates used drugs regularly before incarceration. In fact, approximately one in four violent offenders were under the influence while in commission of their crime (Drug, 2014). The Therapeutic Community Model of Drug Rehabilitation was entirely voluntary yet there were strict rules. Despite the author having found articles that succeeded at identifying lowered recidivism rates, this article found no significant benefit of these drug programs when measuring through recidivism rates (Axiak, 2016).

Inciardi, Martin, and Butzin (2004) analyzed a five-year recidivism rate as a result of a multistage therapeutic community treatment. The program emphasizes the importance of prosocial values and separation from the negative environment of prison. The treatment showed positive results; the recidivism rate had decreased by 70 %. Additionally, the authors noted the aging out phenomenon, or when an individual grows older and desists in crime. Gender was also found to be a strong predictor of recidivism, as women had significantly lower rates than the men.

Belief is a strong personal motivator, yet programs that seem to target a person's belief do not appear to be effective (Bates, Falshaw, Corbett, Patel, and Friendship, 2004; Johnson, Larson, and Pitts, 1997; Axiak, 2016). Perhaps, belief is associated with crimes that are more behaviorally ingrained (i.e., drug offenders and sex offenders) than those of attachment, commitment, and involvement. Furthermore, these programs may not be representing the

element of belief as accurately as the other programs represent their elements of Social Bond Theory.

Social Bond Theory consists of four elements: attachment, commitment, involvement, and belief. These elements are frequently found in prison programs and can classify these programs into separate categories. Prison programs that exemplify one of these aspects will be analyzed for the odds of failure. The intent of this study is to show that these programs that represent Social Bond Theory are more effective than no programming. The individual elements will be compared against each other to determine the most effective aspect of Social Bond Theory in the criminal justice system.

METHODS

Inclusion Criteria

The research articles were limited by several inclusion criteria. To ensure the relevancy of the research to the current criminal justice system, all articles must be published from 2000-2015. The recidivism rate must be measured as rearrest, reconviction, or reincarceration and must be three years or less (several exceptions were made). All articles must have at least 50 participants and the recidivism rate listed. In order to analyze the results, there must be a control group with a comparative recidivism rate. Finally, each program must contain an aspect of Social Bond Theory: commitment, attachment, involvement, or belief.

Search Strategy

A thorough online search was conducted to ensure a wide variety of research articles. The search engines utilized were EBSCOhost, JSTOR, GoogleScholar, and ProQuest. Multiple search phrases were used with a variety of combinations to maximize the search results. Sample search terms include but were not limited to: prison programming, recidivism, attachment,

commitment, involvement, belief, program, secondary education, vocational training, social bond theory, and rehabilitation. Both published and unpublished research articles were included in an attempt to limit publishing bias. Forty total studies were found from 35 separate research articles.

Statistical Analysis

The compiled articles were then analyzed using Odds Ratio. Where the formula for Odds Ratio is:

$$OR = (aXd)/(bXc)$$

Where a is the portion of the treatment group that recidivated, b is the portion of the treatment group that did not recidivate, c is the portion of the control that recidivated, and d is the portion of the control that did not recidivate. Odds ratio is interpreted as the most likely predicted outcome. If the value is between zero and one, then participating in the program has made it more likely to remain released from prison. If the value is between one and two, then not participating in the program has made it more likely to remain released from prison. The standard error was found using the following formula:

$$SE\{\ln(OR)\} = \sqrt{\frac{1}{a} + \frac{1}{b} + \frac{1}{c} + \frac{1}{d}}$$

A 95 % confidence interval, meaning a 5 % chance that the results were inaccurate, was determined using the following formula:

$$95\% CI = e^{(\ln(OR) \pm 1.96 \times SE)}$$

The results were significant if the confidence interval did not contain the value of one. The odds ratios for each study were weighted proportionately to their sample size to ensure proper representation.

The following is an example of how the statistics were found and interpreted:

	Failure	Success
Program	40	313
Control	337	365

These were the raw data extracted from Grella and Rodriguez (2011). The numbers were inserted into the odds ratio equation:

$$OR = (aXd)/(bXc) = (40X365)/(313X337) = 0.138$$

Therefore, the odds ratio was found to be 0.138. The significance was found by finding the standard error and then the upper and lower bounds.

$$SE = \sqrt{\left(\frac{1}{a}\right) + \left(\frac{1}{b}\right) + \left(\frac{1}{c}\right) + \left(\frac{1}{d}\right)} = \sqrt{\left(\frac{1}{40}\right) + \left(\frac{1}{313}\right) + \left(\frac{1}{337}\right) + \left(\frac{1}{365}\right)} = 0.18412$$

$$Lower\ Bound = e^{(ln(OR)-1.96 \times SE)} = e^{(ln(0.1384)-1.96 \times 0.18412)} = 0.0965$$

$$Upper\ Bound = e^{(ln(OR)+1.96 \times SE)} = e^{(ln(0.1394)+1.96 \times 0.18412)} = 0.1986$$

The odds ratio was found to be significant if the difference between the lower and upper bound does not include the number one.

The odds ratio is a measure of the odds of failure for the individual after release.

Therefore, in this example the odds of failure of the experimental group was 0.138 that of the control group. This value can be translated into a percentage with the following equation:

$$Odds\ failure\ \% = \frac{\left(\frac{c}{d}\right) - \left(\frac{a}{b}\right)}{\frac{c}{d}} \times 100 = \frac{0.923 - 0.128}{0.923} \times 100 = 0.86 \times 100 = 86\ \%$$

This indicates that the odds of failure in the experimental group is 86 % lower than the control group. The final manipulation is finding the odds of success. This is found by determining the inverse of the odds ratio:

$$Odds\ of\ Success = \frac{1}{OR} = \frac{1}{1.38} = 7.25$$

These results show that the odds of success for the experimental group is 7.25 times more likely than the control group.

Reliability

The results of this study have an unknown degree of reliability. Only one individual coded the studies, resulting in low inter-rater reliability. Inter-rater reliability could be fixed by allowing two or more individuals to code the data into appropriate categories. Furthermore, the consistency of the data is limited due to discrepancies in time to recidivism and measure of recidivism (re-arrest, re-conviction, re-incarceration, or no specification). In an effort to limit variation in the data no longer than four years was allowed. Additionally, if more than the one definition of recidivism was provided, re-conviction was used as the primary data source.

Sample

Following a thorough literature review, 35 articles were selected that met the inclusion criteria. Several articles contained multiple unique data sets, which resulted in a total of 40 cases analyzed. The results were separated by category: commitment (N = 14), attachment (N = 7), involvement (N = 9), and belief (N = 10). These studies analyzed a cumulative total (treatment groups and controls) of 467,741 individuals. The studies used are presented in Table 2.

Table 2: Sample Layout

Authors	Sample Size (N)	Category	Program	Characteristic of Program	Measure of Recidivism	Published or Unpublished
Garzarelli (2011)	90	Attachment	Parenting program	Connection to important individuals	1 year	Unpublished
Gat (2000)	780	Attachment	Mother/Offspring Life Development Program	Connection to important individuals	3 years	Unpublished
Goshin, Byrne, & Henninger (2013)	43,038	Attachment	Prison nursery program	Connection to important individuals	3 years	Published
Grella & Rodriguez (2011)	1,055	Attachment	Community care	Relationship building	1 year	Published
McKiernan, Shamblen, Collins, Strader & Kokoski (2013)	500	Attachment	Family strengthening program	Connections to important individuals	1 year	Published
Robbins, Martin, & Surratt (2009)	224	Attachment	Maternal role of drug involved women program	Connection to important individuals	1 year	Published
Seredycz (2008)	272,381	Attachment	Reentry program for drug users	Relationship building	1 year	Unpublished
Bohmert & Duwe (2012)	370	Commitment	Work program	Investment in career advancement	3 years	Published

Authors	Sample Size (N)	Category	Program	Characteristic of Program	Measure of Recidivism	Published or Unpublished
Cho & Tyler (2010)	9,933	Commitment	Adult education	Investment in education	3 years	Published
Duwe (2015)	3,570	Commitment	Work Program	Investment in career advancement	4 years	Published
Gordon & Weldon (2003) Sample A	589	Commitment	Vocational training	Investment in career advancement	2 years	Published
Gordon & Weldon (2003) Sample B	339	Commitment	GED class	Investment in education	2 years	Published
Kim & Clark (2013)	680	Commitment	College program	Investment in education	3 years	Published
Nally, Lockwood, Knutson, & Ho (2012)	2,155	Commitment	Education program	Investment in education	3 years	Published
Sedgley, Scott, Williams, & Derrick (2010)	2,447	Commitment	Prison employment	Investment in career advancement	3 years	Published
Swimpson (2008)	201	Commitment	Postsecondary education program	Investment in education	3 years	Unpublished
Torre & Fine (2005)	2,305	Commitment	Higher education	Investment in education	4 years	Published
Tuning (2005)	100	Commitment	Education program	Investment in education	3 years	Unpublished

Authors	Sample Size (N)	Category	Program	Characteristic of Program	Measure of Recidivism	Published or Unpublished
Winterfield, Coggeshall, Burke-Storer, Correa, & Tidd (2009) Sample A	1,406	Commitment	Postsecondary correctional education in Indiana	Investment in education	1 year	Unpublished
Winterfield, Coggeshall, Burke-Storer, Correa, & Tidd (2009) Sample B	318	Commitment	Postsecondary correctional education in Massachusetts	Investment in education	1 year	Unpublished
Winterfield, Coggeshall, Burke-Storer, Correa, & Tidd (2009) Sample C	1,682	Commitment	Postsecondary correctional education in New Mexico	Investment in education	1 year	Unpublished
Clarke & Duwe (2015)	1581	Involvement	Leadership Class	Time in personal improvement	1 year	Published
Ely (2012)	4,583	Involvement	Training programs (i.e., horticulture, transportation, building)	Time in personal improvement	3 years	Unpublished
Fields (2010)	423	Involvement	Mock job fair program	Time in personal improvement	6 months	Unpublished
Hopper (2008) Sample A	41,102	Involvement	Prison industry in Indiana	Extended time periods in program	3 years	Unpublished
Hopper (2008) Sample B	54,497	Involvement	Prison industry in Tennessee	Extended time periods in program	3 years	Unpublished

Authors	Sample Size (N)	Category	Program	Characteristic of Program	Measure of Recidivism	Published or Unpublished
Miller (2010) Sample A	175	Involvement	Group meetings	Extended time periods in program	2 years	Unpublished
Proctor, Hoffmann, & Allison (2012)	183	Involvement	Journaling program	Extended time periods in program	1 year	Published
Van Der Linden (2015)	14,568	Involvement	Gardening	Extended time periods in program	1 year	Published
Wilson & Davis (2006)	229	Involvement	Multimodal skills training	Time in personal improvement	1 year	Published
Clark (2015)	239	Belief	Reentry assistance program	Acceptance of societal norms	2 years	Published
Duwe (2015)	340	Belief	Reentry assistance program	Acceptance of societal norms	2.3 years	Published
Duwe & Kerschner (2008)	2,902	Belief	Challenge program	Acceptance of societal norms	3 years	Published
Johnson (2004)	402	Belief	Religious program	Focus on moral beliefs	3 years	Published
MacKenzie, Bierie, & Mitchell (2007)	126	Belief	Correctional boot camp program	Acceptance of societal norms	3 or less years	Published
McGrath, Cumming, Livingston, & Hoke (2003)	146	Belief	Sex offender treatment	Focus on moral beliefs	3 to 6 years	Published
Miller (2010) Sample B	189	Belief	Reentry program	Acceptance of societal norms	2 years	Unpublished

Authors	Sample Size (N)	Category	Program	Characteristic of Program	Measure of Recidivism	Published or Unpublished
Moses (2014)	866	Belief	DUI treatment	Acceptance of societal norms	6 years	Published
Stewart, Gabora, Kropp, & Lee (2014)	246	Belief	Family violence program	Acceptance of societal norms	3 years	Published
White (2015)	781	Belief	Treatment services	Acceptance of societal norms	6 months	Unpublished

RESULTS

Attachment

A total of seven cases were analyzed for attachment (see table 3). These cases varied in exact program (see columns 4 & 5 of table 2 for program details), but displayed characteristics of attachment. For six of these cases (i.e., 86 %) the experimental group had a lower odds of failure than the control group. Five of these cases (i.e., 71 %) were found to be significant at a 95 % confidence interval ($p \leq 0.05$). All of the significant studies had an odds of failure lower than that of the control groups, this indicates that participation in the program decreased the recidivism rate. The odds ratios for each study are presented in Table 3. The overall odds ratio for attachment was found to be significant at 0.511 (see table 7), which means that the experimental group had an odds of failure lower than the control group by a factor of 0.511. The overall attachment odds of failure in the experimental group is 49 % lower than the control group. Additionally, the odds of success are greater by a factor of 1.96 in the experimental group than the control group. This data indicates that programs oriented around attachment are significantly likely to have lower odds of failure in the experimental groups than the control groups.

Commitment

A total of 14 cases were analyzed for commitment (see table 4). These cases varied in exact program (see columns 4 & 5 in table 2 for program details), but displayed characteristics of commitment. Based on odds ratio analysis, thirteen of the cases (i.e., 93 %) were favorable to the experimental group, while one was favorable to the control group. Upon closer examination, 11 (i.e., 79 %) were found to be significant at a 95 % confidence interval ($p \leq 0.05$). As a result, ten of the data sets (i.e., 71 %) indicated that the program significantly limited the recidivism rate in the experimental group, while one case (i.e., 7 %) showed that the control group had a significantly lower recidivism rate. As but one example of odds ratio interpretation, the case

supporting the control group found that the odds of failure in the experimental group was 1.57 times more likely than the control group. The overall commitment odds ratio found that the odds of failure in the experimental group was 0.8959 that of the control group (see table 7). These findings suggest that the likelihood of failure (i.e., return to prison) in the experimental group is 10 % lower than the control group. Furthermore, the odds of success for commitment in the experimental group was better by a factor of 1.12 than the control group. This indicates that program participation oriented around commitment are significantly less likely to result in a return to prison in contrast to the control.

Involvement

A total of nine cases were analyzed for involvement. These cases varied in exact program (see columns 4 & 5 in table 2 for program details), but displayed characteristics of involvement. Of these cases, there was no consistent trend towards the experimental or the control group having a lower odds of failure. Only four of the data sets (i.e., 44 %) were found to be significant at a 95 % confidence interval ($p \leq 0.05$). All four of the significant studies had lower odds of failure for the experimental group. These significant studies showed that participation in the program decreased the recidivism rate. The odds ratios for each study are presented in Table 5. The overall odds ratio for involvement was found to be significant at 0.4395 (see table 7), indicating that the experimental group had a lower odds of failure than the control group. The overall involvement odds of failure in the experimental group is 56 % lower than the control group. The experimental group's odds of success were greater by a factor of 2.275 than the control group. In sum, results for the 4 of 9 involvement cases which illustrate significant findings, each suggest a marked improvement in reduction of recidivism rates in the programs oriented towards involvement.

Belief

A total of 10 cases were analyzed for belief (see table 6). These cases varied in exact program (see columns 4 & 5 in table 2 for program details), but displayed characteristics of belief. The data displayed no tendency towards the experimental group or the control group. Three of the studies (i.e., 30 %) were found to be significant at a 95 % confidence interval ($p \leq 0.05$). These three data sets indicated that participation in the programs decreased the odds of failure for the experimental group in comparison to the control group. The odds ratios for each study are presented in Table 6. The overall odds ratio for belief was found to be significant at 0.7784, displaying that the experimental group had a lower odds of failure by a factor of 0.7784 than the control group (Table 7). The overall belief odds of failure in the experimental group is 22 % lower than the control group. The odds of success for the experimental group was greater by a factor of 1.2847 than the control group. This is indicative of the success of the programs of belief reducing the recidivism rate by a significant degree, though also that a small minority of belief programs are effective (i.e., 30%).

Table 3: Odds ratio for attachment studies

Attachment

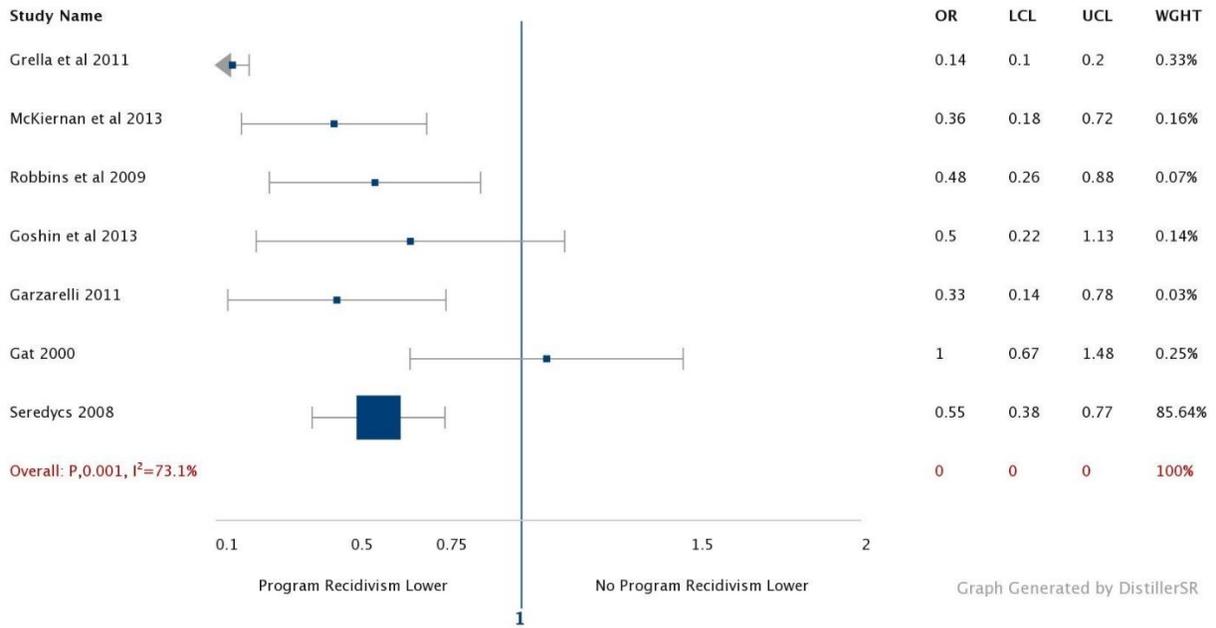


Table 4: Odds ratio for commitment studies

Commitment

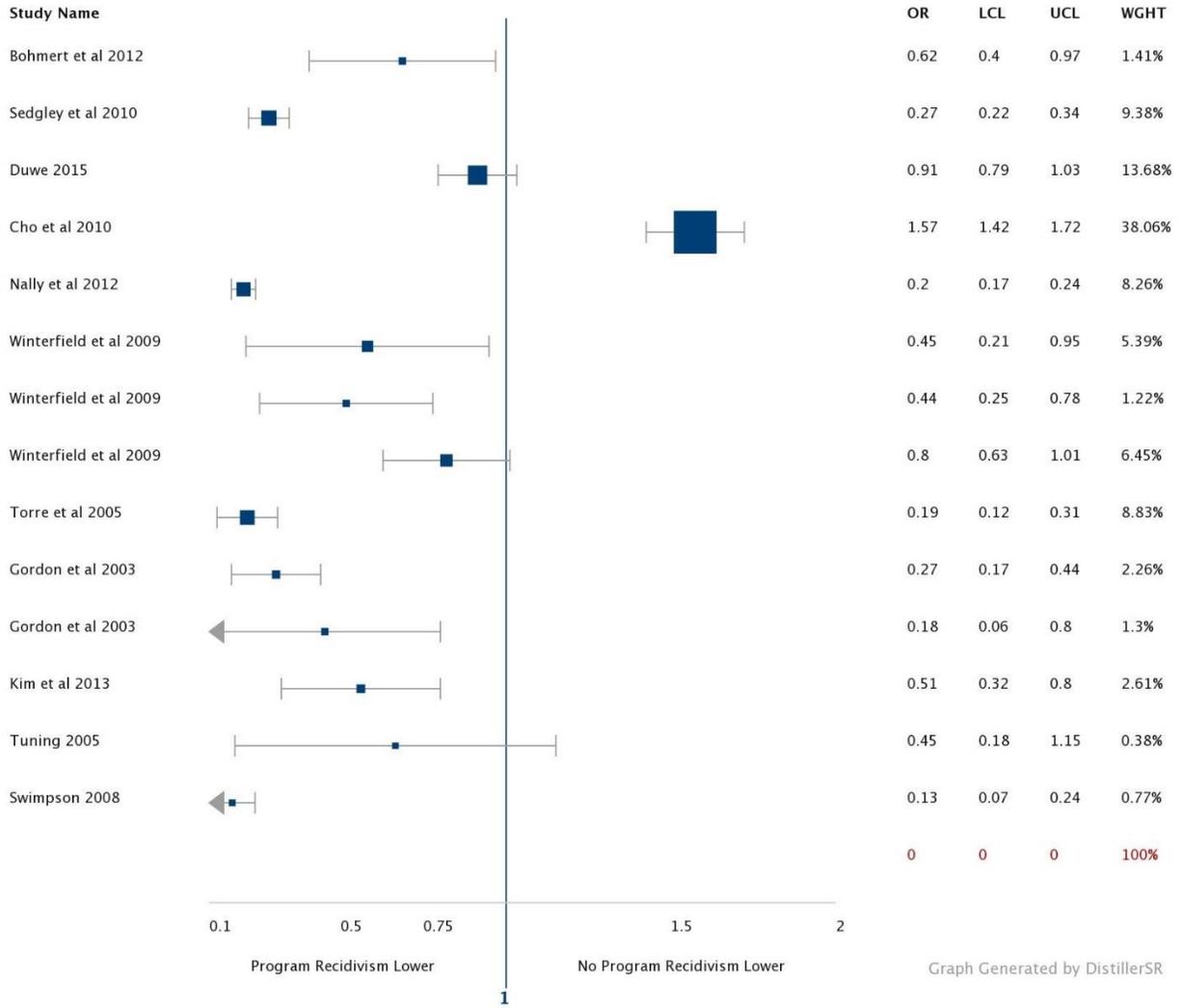


Table 5: Odds ratio for involvement studies

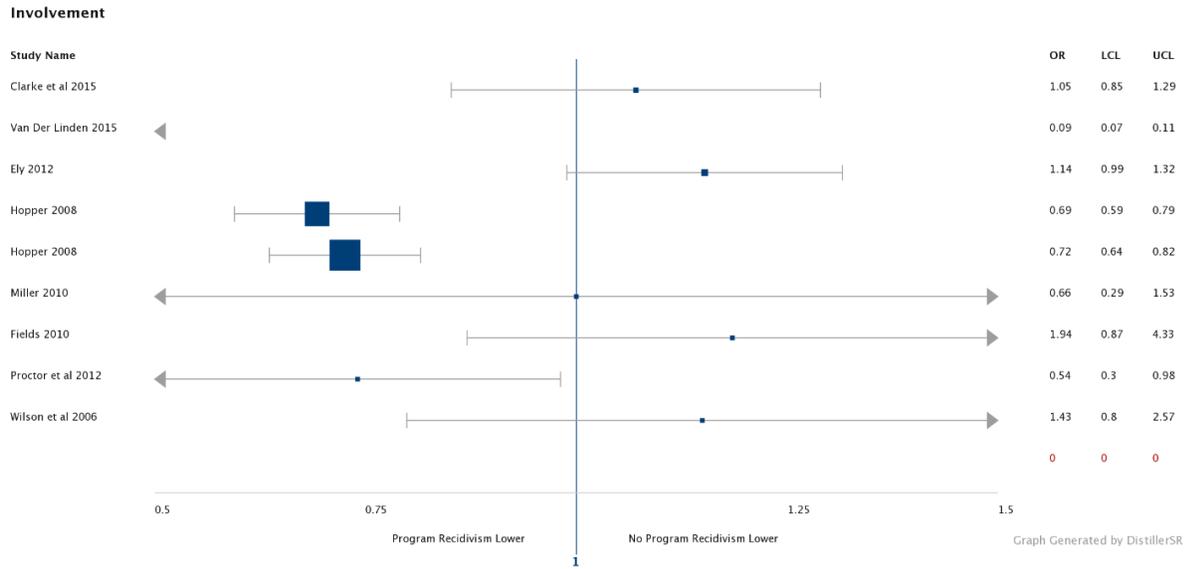


Table 6: Odds ratio for belief studies

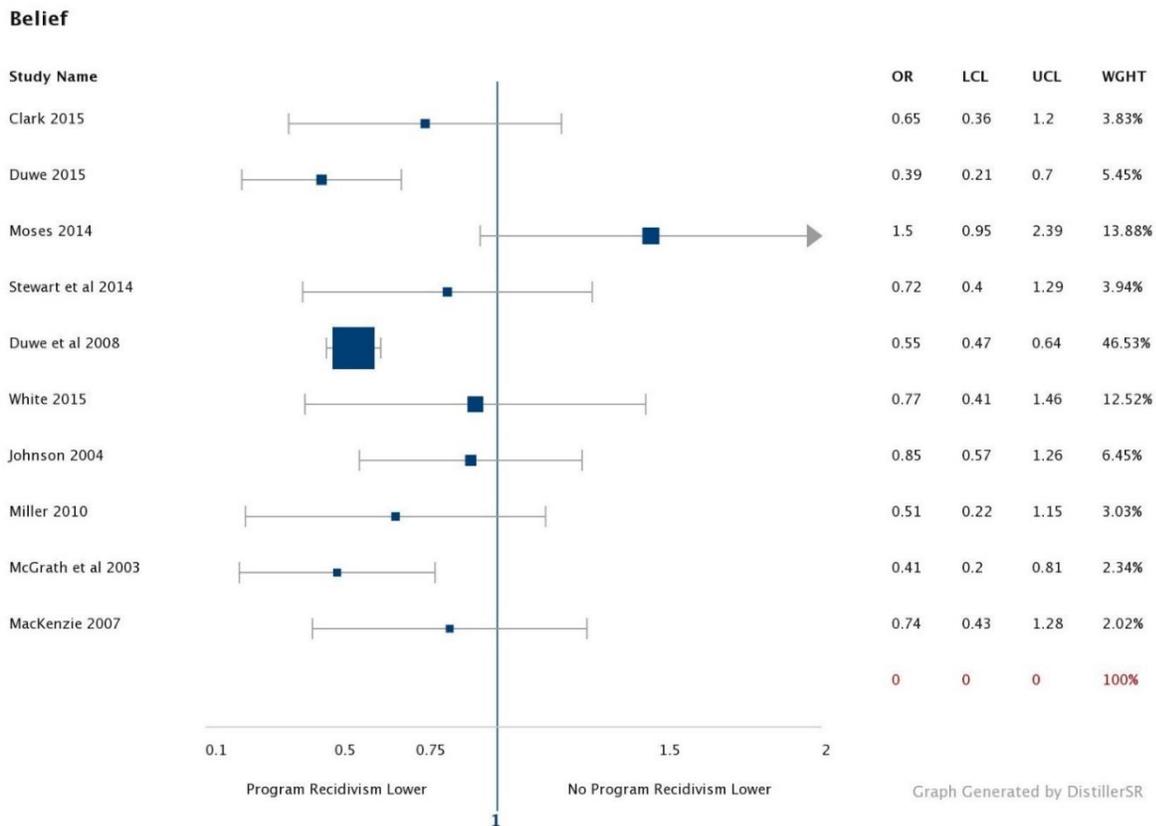
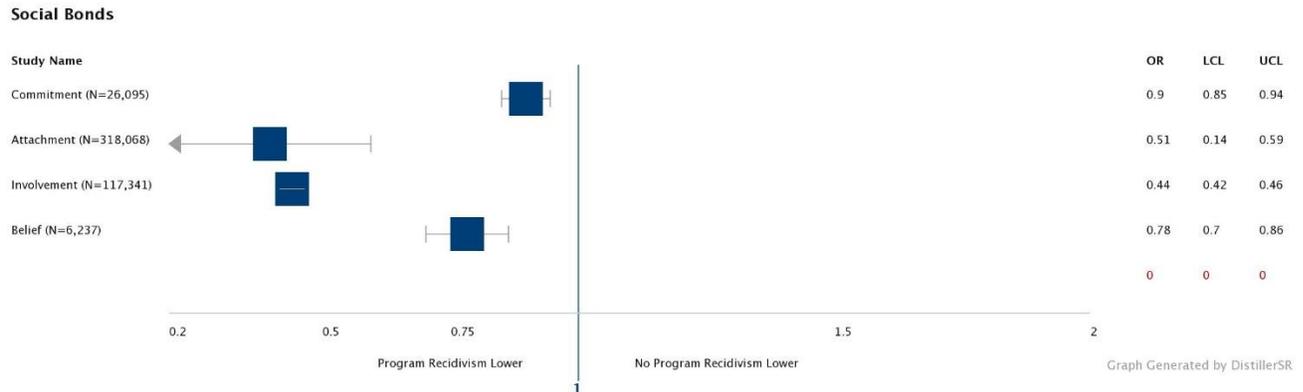


Table 7: Overall Odds Ratios for Social Bond Characteristics



CONCLUSIONS AND DISCUSSION

Many studies have previously shown that prison programs frequently reduce the recidivism rates. These data present a new aspect of this topic: viewing such programs through the lens of Social Bond Theory. Approximately half of the studies (i.e., 58 %) analyzed were found to be significant for program participation lowering the odds of failure, whereas only one commitment study indicated that the control group had a significantly lower odds of failure. This relative consistency in support of programs supports the conclusion that prison programs that follow an aspect of Social Bond Theory have lower recidivism rates than the general population. This indicates that rehabilitation is possible for more members of the incarcerated population than is currently being reached. However, dramatic difference between “types” of social bond studies were revealed and important to further consider.

Attachment was found to have a strong difference between the experimental and the control groups in the overall odds of failure. The majority of attachment studies were found to be significant that experimental group had a lower odds of failure than the control group.

Attachment was predicted to be the most significant aspect of Social Bond Theory. This research

indicates that attachment is an influential aspect of Social Bond Theory in relation to prison programming. Due to the relative consistency of the results, there is a low likelihood that the data was skewed to inaccurately portray the odds of failure for attachment. Therefore, attachment was significantly successful in lowering the recidivism rate.

With the exception of the one study, commitment was a very strong characteristic. The majority of studies significantly showed that the odds of failure was lower in the experimental group than the control group. Despite this contradiction, the overall for commitment was still significant in favor of the experimental groups. The overall odds of failure was likely skewed to indicate a smaller difference in odds of failure due to the disproportionate size of the inconsistent trial. Therefore, if the majority of data remains consistent, commitment likely would be a much lower odds of failure in the experimental group than the control group.

Involvement studies resulted in the lowest odds of failure for the experimental group compared to the control group. This would appear to indicate that involvement is the most influential aspect of Social Bond Theory in prison programming. This conclusion may be inaccurate because more than half of the involvement studies were found to be insignificant. Further study would be necessary to conclude that involvement is the most effective aspect.

Belief was found to be significant in lowering the odds of failure in the experimental group. Only three of the ten belief studies were found to be significant. This indicates that individual studies were not found to be consistently significant in lowering the odds of failure in the experimental group or even determining a significant difference in results between experimental and control groups. This inconsistency appears to be resolved by compiling all of the individual studies but still may not be reliable. This conclusion is consistent with the expected weakness of belief programming.

Since the tough on crime era began, there has been less emphasis on rehabilitation of inmates. Prison programs are frequently cut to save money in the budget, when this is a counterproductive policy. An investment in the establishment of effective Social Bond programs will lead to a decrease in the cost of the prison system. This will be seen in lower incarceration rates, less overcrowding, and overall fewer individuals that are under the care of the state. Success from these programs often leads to employment and immersion within the community. Increased employment aids these released individuals in surviving on the outside. These former inmates can be great contributions for their community and especially their families.

This research is a step in the correct direction for improving the prison system. These results are only capable of showing that an effective program can lead to decreased recidivism rates. Future research projects should focus on the aspects of each program that make them successful. This would enable the system to adapt their programs to ensure the lowest recidivism rates. Another approach that would be beneficial is applying Social Bonds Theory to diversionary court sentencing. The most effective way to limit expenditures of the penal system is to divert individuals before they are even incarcerated. Research within the criminal justice system is necessary to cultivate thriving, productive, and low crime environments.

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