

2016

Psychoneuroimmunology: Enhancing Treatment Efficacy and Reducing Sexual Offender Recidivism In Court-Mandated Treatment

Cameron F. Zeidler

Antioch University Santa Barbara

Follow this and additional works at: <http://aura.antioch.edu/etds>



Part of the [Mental Disorders Commons](#), and the [Other Psychiatry and Psychology Commons](#)

Recommended Citation

Zeidler, Cameron F., "Psychoneuroimmunology: Enhancing Treatment Efficacy and Reducing Sexual Offender Recidivism In Court-Mandated Treatment" (2016). *Dissertations & Theses*. 320.

<http://aura.antioch.edu/etds/320>

This Dissertation is brought to you for free and open access by the Student & Alumni Scholarship, including Dissertations & Theses at AURA - Antioch University Repository and Archive. It has been accepted for inclusion in Dissertations & Theses by an authorized administrator of AURA - Antioch University Repository and Archive. For more information, please contact dpenrose@antioch.edu, wmcgrath@antioch.edu.

PSYCHONEUROIMMUNOLOGY: ENHANCING TREATMENT
EFFICACY AND REDUCING SEXUAL OFFENDER RECIDIVISM IN
COURT-MANDATED TREATMENT

A dissertation presented to the faculty of

ANTIOCH UNIVERSITY SANTA BARBARA

in partial fulfillment of
the requirements for the
degree of

DOCTOR OF PSYCHOLOGY
in
CLINICAL PSYCHOLOGY

By

Cameron Fitzpatrick Zeidler

May 2016

PSYCHONEUROIMMUNOLOGY: ENHANCING TREATMENT EFFICACY AND
REDUCING SEXUAL OFFENDER RECIDIVISM IN COURT-MANDATED
TREATMENT

This dissertation, by Cameron Fitzpatrick Zeidler, has been approved by the committee members signed below who recommend that it be accepted by the faculty of Antioch University Santa Barbara in partial fulfillment of requirements for the degree of

DOCTOR OF PSYCHOLOGY

Dissertation Committee:

Brett Kia-Keating, Ed.D.
Chairperson

Christopher Howard, Psy.D.
Second Faculty

Joseph Lockhart, Ph.D., ABPP
External Expert

© Copyright by Cameron Fitzpatrick Zeidler, 2016

All Rights Reserved

Abstract

Despite astronomical costs, state-funded sex offender treatment has a sole purpose of protecting communities at large. Designed to treat sexual psychopaths, costly state risk management programs are required to use traditional, outdated treatment models, which lack empirical support, lack published research, and lack curricula written at the seventh-grade reading level. Psychoneuroimmunology (PNI) eagerly proves to be a new modality for Psychoeducation (PE) enhancing treatment efficacy and reducing offender recidivism in court-mandated treatment. The distinction in the present study is the difference between PE alone (control group) and PE with PNI (experimental group). Specifically, this study investigated the extent to which implementing the PNI treatment intervention was associated with decreased recidivism in court-mandated treatment. This study employed a quantitative research design with repeated measures with multiple linear regression analyses. The two-independent/question predictor variables: treatment interventions of PNI (18-months and 24-months of treatment) were compared on one dependent variable: (reduction in the participant's chance of recidivating following treatment). An association of decreased recidivism was established with results that demonstrated a statistically significant effect or difference between the control and treatment groups. Significant effects were evaluated for using regression beta coefficients with t-value and significance of t-values associations, respectively. Furthermore, results suggested that implementing the PNI treatment intervention in the experimental group produced a statistically significant effect between groups. There was a significant bivariate correlation between implementation of treatment intervention and participants who were experiencing: (a) financial problems ($\beta = -4.06, p = .13$), (b) family/marital

problems ($\beta = 1.71, p = .009$), (c) negative social support influence ($\beta = .77, p = .07$) and (d) participants whose history included the presence of alcohol or drugs ($\beta = .69, p = .042$). This variable was significant in Table 7 regression model and therefore the hypothesis was supported. Sexually deviant offenders mandated to receive treatment for sex offences were more likely to benefit from PNI treatment than their non-PNI counterparts in reducing their risk of recidivism. Implications for further research, as well as the need to formulate specialized treatment for psychopathic sex offenders are discussed. *The electronic version of the dissertation is accessible at the Ohiolink ETD center <http://www.ohiolink.edu/etd>.*

Keywords: Cognitive-Behavioral Therapy, Psychoeducation, Psychoneuroimmunology, Recidivism, Sexual Offender, Valence of Emotion

Dedication

This work is dedicated to Dr. Gary R. Zeidler and Linda D. Zeidler, my father and mother without whose devotion and encouragement none of this would be possible. I also dedicate this work to my heroes, Dr. Joseph J. Lockhart and Dr. Susan L. Ferrant, whose mentoring in the field of Forensic Psychology modeled dedication and "raised the bar" for my pursuits. I further dedicate my work to Zane Zeidler whose legacy continues, and acknowledge with deep affection Portia and Stella Zeidler.

Acknowledgements

Throughout my journey, I am grateful for the support of my brothers, Dr. Clayton Zeidler and Dr. Brendon Zeidler. For modeling what it means to be a lifelong learner, I give gratitude to Dr. Barbara Lipinski. For guidance and inspiration, I am grateful to Dr. Ron Pilato and Dr. Sharleen O'Brien. For his invaluable assistance to my dissertation, I give utmost appreciation to my committee chair, Dr. Brett Kia-Keating. For his in-depth introduction to Neuroscience, I give gratitude to my faculty reader, Dr. Christopher Howard. For her constant encouragement since the matriculation of my doctoral studies, I am grateful to Stephanie Holland. For having introduced me to the mission of Antioch University Santa Barbara, I thank Laura Ericson. For having demonstrated excellence in the treatment of Severe and Persistent Mental Illness, and for fostering my personal growth in the field of Psychology, I give utmost appreciation to Dr. Thomas Eby. For their unending support and faith in me, I thank Sr. Domenica and Fr. Mike Engh, S.J. For their years of optimism and consolation, I am grateful to Nee-Nee, Aunt Maureen and Uncle Mike.

Table of Contents

Abstract.....	iv
Dedication.....	vi
Acknowledgements.....	vii
Table of Contents.....	viii
List of Tables.....	x
Chapter One: Introduction.....	1
Statement of the Problem.....	1
Statement of the Problem Financially.....	1
Statement of the Problem Characterologically.....	6
Significance of the Study.....	9
Curriculum and Structure of Risk Management.....	14
Purpose of the Study.....	16
Research Question and Hypotheses.....	17
Definition of Terms.....	22
Chapter Two: Review of the Literature.....	24
Court-Mandated Treatment.....	24
The Curriculum and Structure of Current Treatment (Risk Management) of Sexual Offenders: “The Good and The Bad” Explored.....	25
Psychoeducation.....	34
Psychotherapy Triumphs Medication.....	40
More Skilled Psychopathy Requires Advanced Treatment Curricula.....	43
Intelligence, an Aggravating Factor for Psychopathy.....	43
Support For The Psychoeducation of Psychoneuroimmunology as a New Treatment Intervention For Sexual Offenders.....	62
The Psychoeducation of Psychoneuroimmunology: The Development of the Treatment Intervention.....	70
Affect.....	71
Cytotoxicity.....	73
Affect and the Central Nervous System.....	75
Coping with Stress.....	79
Allostasis.....	81
Affect and Illness.....	82
Psychosocial Stressors.....	84
Negative Affect.....	87
Affect and Recidivism.....	89
Summary and Conclusions.....	91

Chapter Three: Methodology	92
Overview	92
Research Design.....	94
Limitations of Design	98
Sampling Procedures	101
Power Analysis	101
Sampling	102
Participants.....	103
Data Collection	106
Initial Procedures	106
Archival Data	108
Instrumentation	111
The Level of Service Case Management Inventory (LS/CMI).....	113
Reliability and Validity.....	114
Data Analysis	120
Multiple Linear Regression Analysis Procedures.....	120
 Chapter Four: Results	122
Overview.....	122
Results From Descriptive Analyses	122
Regression Results	130
Summary of Findings Related to Research Hypotheses	132
 Chapter Five: Discussion	137
Overview.....	137
Review of Statement of Problem and Study Rationale.....	138
Conclusions.....	139
Limitations	140
Recommendations for Research	144
Recommendations for Practice	145
 References	147

List of Tables

1. Descriptive Analyses For Each Offender's Age	105
2. Descriptive Statistics For Each Offender's Change In The Participant's Chance of Recidivating Following Treatment	123
3. Frequencies of PreTest Antisocial Pattern	124
4. Frequencies of PreTest Antisocial Personality	124
5. The Number of Participants Who Have Committed Rape Within Each Racial Category	125
6. The Number of Participants Convicted of Child Molestation Within Each Racial Category	126
7. Frequencies For Study Variables (a)	127
8. Frequencies For Study Variables (b)	128
9. Frequencies For Study Variables (c)	129
10. Regression Predicting Reduction In Participant's Chance of Recidivating Following Treatment	132

Psychoneuroimmunology: Enhancing Treatment Efficacy and Reducing Sexual Offender
Recidivism in Court-Mandated Treatment

Chapter 1: Introduction

Statement of the Problem

Statement of the Problem Financially

Despite astronomical costs, state-funded sex offender treatment has a sole purpose of protecting communities at large (“Civil Commitment Process,” 2016; Cowburn, 2015; Day, 2013; Petrunik, 1982; Wang, 2014). However, there is a question as to whether legislators are appropriately prioritizing the budget when the costs to fund sex offender treatment skyrocket at the expense of state funding for healthcare and education (Associated Press, 2010). Wang (2014) details the allocated federal funding for the Sex Offender Registration and Notification Act of 2006

Is still nowhere near sufficient when looking at each state’s actual implementation costs, which have been estimated to be as high as \$59.2 million in California, \$38.8 million in Texas, and \$31.3 million in New York— figures that far exceed the total sum of federal assistance granted in 2013 (p. 699).

Other authors (Leon, Burton, & Alvare, 2011) cite sex offender policy, such as California Proposition 83: Jessica’s Law, as costing hundreds of millions of dollars. These reviews conjure up a state of financial turmoil for a broad majority of the 20 states spending more on offender treatment than education and healthcare (Associated Press, 2010).

Monitoring sex offenders and ensuring public safety after sexual offenders have completed their court-ordered criminal sentence of confinement presents tricky

possibilities and risky circumstances for both law enforcement agencies as well as citizens (“Civil Commitment Process,” 2016; Cowburn, 2015; Day, 2013; Petrunik, 1982; Wang, 2014). The Sexually Violent Predator (SVP) civil commitment process allows the judicial system to confine a sex offender deemed “too dangerous to reintegrate into society,” for purposes of treatment, after that offender has served his criminal sentence (Alexander, 2004; “Civil Commitment Process”, 2016; Fanniff, Otto, & Pettila, 2010).

According to McDonald (2004), Article I of the United States Constitution does not allow states to enact laws that are *ex post facto*, or in other words laws that are “retrospective” (laws applying to events before the law was enacted) or laws that are “retributive” or vengeful (laws disadvantaging individuals by implementing punishments beyond that individual’s original sentence). The *Ex Post Facto* Clause... “Forbids the application of any new punitive measure to a crime already consummated” (King, 1998, p. 1428). The United States Constitution also prohibits states from enacting laws that constitute *double jeopardy*. King (1998) quoted *Helvering v. Mitchell*, 303 U.S. 399 (1938), which defined double jeopardy as “a prohibition against ‘punishing twice, or attempting a second time to punish criminally, for the same offense’” (p. 1428). To avoid *ex post facto* and *double jeopardy*, offenders cannot be held in custody after serving their court-ordered criminal sentence (Fanniff et al., 2010). Therefore, the SVP civil commitment process places the sex offender into a secure treatment facility, a mental institution, for care and control under civil commitment as opposed to arguably further criminal commitment (Alexander, 2004; “Civil Commitment Process,” 2016; Fanniff et al., 2010). Civil commitment is a statutorily defined post-sentence detention of an

offender with the intention of preventing further offenses (Alexander, 2004; Fanniff et al., 2010). While the purposes of civil commitment is community protection and treatment for the offender, the laws governing these purposes were imposed despite the incredible costs that SVP policy placed on states.

The costs of these “civil commitment” procedures approximate \$500 million both annually and nationally for purposes of confinement and treatment of 5,200 sex offenders (Associated Press, 2010). According to an article by Harris, Levenson, and Ackerman, (2014), the National Center for Missing and Exploited Children reported 739,853 registered sex offenders living in the United States as of June 2011.

Because California is the most populated state in the Union and has had lifetime registration for its convicted sex offenders since 1947, California has more registered sex offenders than any other state with about 88,000 identified sex offenders (Department of Justice, August 2007). Currently, the California Department of Corrections and Rehabilitation (CDCR) supervises about 10,000 of those 88,000 sex offenders, of which about 3,200 have been designated as High Risk Sex Offenders (CDCR Housing Summit, March 2007). Additionally, there are about 22,500 adult sex offenders serving time in one of 32 state prisons operated by CDCR (California Sex Offender Management Task Force Report, July 2007; <http://www.casomb.org/index.cfm>, 2016).

The civil commitment of sex offenders, post-prison sentences, appeared during the 1990’s in twenty states when state funding was abundant (Associated Press, 2010). Despite the implementation of the SVP civil commitment policy, the expense to confine

and treat sex offenders well exceeded what legislators ever imagined (Associated Press, 2010). The cost of treatment per offender annually amounted to \$175,000 in New York, \$173,000 in California, and a national average of \$96,000 yearly (Associated Press, 2010). Among the twenty states, Minnesota's sex offender treatment expenses reached more than five times the cost of confining offenders in prison (Associated Press, 2010). Minnesota's 2010 expense to housing and treating sex offenders rose to \$65 million and the sizeable legal overhead, required for each civil commitment, was not factored into these expense figures (Associated Press, 2010). Such expensive legislation caused an impasse for legislators compelled to reduce financial burden while fearing they would be viewed as "lenient" on sex offenders or "soft on crime" (Associated Press, 2010; Wang, 2014).

Despite contentious debates surrounding sex offender policy and costly treatment implementation, states that do not follow sex offender policy, risk being seen as "soft on crime" (Wang, 2014). As a result, legislators began instituting reductions in healthcare and education in the face of these "civil" and arguably impractical, escalating, and retributive practices (Associated Press, 2010). According to reporters (Associated Press, 2010)

The heavy financial burden of treating confined sex offenders has left lawmakers with less money as they make agonizing cuts to areas like education and health care. Politicians who spent years cracking down on sex crimes, now struggle to pay for their tougher laws (Associated Press, 2010, p. 1).

With the constitutionality of these laws withstanding opposition to such commitments,

“treatment” centers sprouted across the nation despite pilot study fiscal concerns (Associated Press, 2010). In light of a \$1 billion loss to the state of Minnesota, the governor was simultaneously awarded with a loan of \$90 million to conclude development of a sex offender treatment facility (Associated Press, 2010). Iowa was found to consume \$7 million for purposes of treating 80 offenders in 2010, nearly twice its \$3.6 million budget for the treatment of 48 patients in 2005 (Associated Press, 2010). In 2005, Virginia’s 45 treated sex offenders amassed to a patient roster of 200 in 2010 with expenses ascending from \$10 to \$16 million annually (Associated Press, 2010).

To combat these hefty costs, certain states have thwarted the implementation of the “civil commitment” procedures (Alexander, 2004; Wang, 2014; Fanniff et al., 2010), and successfully challenged the constitutionality of these laws, enabling these states to deny the passing of SVP civil commitment statutes. Nevertheless, of the twenty states that enacted the SVP statute, controversy remains regarding the efficacy of sex offender treatment for reducing an offender’s risk of recidivism (Furby, Weinrott, & Blackshaw, 1989; Levenson & D’Amora, 2007). According to the Associated Press (2010), Maryland researchers concluded that sex offender treatment only minimally reduced offender risk of recidivism by less than 20 percent.

Despite state-by-state controversy over the cost benefit analysis and effectiveness of sex offender treatment, states began using costly pharmacological methods with no guarantee of a lifetime supply in order to control sex offender behavior (Thibaut, 2016). One present method for controlling a sex offender’s behavior is pharmacological treatment by chemical castration (Cowburn, 2015; Thibaut, 2016) with antiandrogen

treatment, which inhibits the production of male hormones and decreases sexually deviant arousal and behavior (Thibaut, 2016). Sadly, antiandrogen treatment must be maintained throughout the offender's life (Associated Press, 2002). Yet, because of the extreme costs of antiandrogen treatment, federal funding cannot guarantee a lifetime supply necessary for controlling sexually deviant behavior (Associated Press, 2002). Therefore, pharmacological treatment focused on "controlling behavior" was too costly and dangerous without guaranteeing that every offender would be able to receive a lifetime supply (Associated Press, 2002).

Given the aforementioned state of financial turmoil, it is this author's claim that such costly pharmacological interventions implore researchers to use more economical and enduring treatment methods, with longer-lasting gains, for the purpose of sex offender treatment and subsequent protection for the community. As later discussed, Psychoneuroimmunology (PNI) treatment, through the form of Psychoeducation (PE) from cognitive-behavioral therapy, may serve as a longer-lasting Cognitive Behavioral Therapy (CBT) intervention for reducing risk of offender recidivism.

Statement of the Problem Characterologically

Some researchers (Cleckley, 1976; Harpur, Hare, & Hakstian, 1989; Muñoz, Frick, Kimonis, & Aucoin, 2008; Salekin, Neumann, Leistico, & Zalot, 2004) argued that possessing intelligence (intellectual or verbal intelligence) was a definitive prerequisite to have "the makings" of a psychopathic sex offender. The level of offender intelligence and degree of deviancy may be characterological catalysts helping to disguise offensive behavior, which ultimately enables the abuse to pervade. Level of offender intelligence,

as an ingredient for cloaking offender abuse, may explain the data (World Health Organization, 2002) as cited by Morgan (2010), “studies of IP sexual abuse prevalence rates are less common than those exploring IP physical abuse” (p. 362). Research (Morgan, 2010) details the difficulty identifying abuse as well as reporting and convicting sexual offenders who offend through intimate partner (IP) sexual abuse. Specific to sexual violence, the number of convictions for IP offenders is low (Morgan, 2010). To exemplify low IP sexual abuse prevalence rates, researchers (Martin, Taft, & Resnick, 2007) detail America and Canada as having 8-15% of lifetime prevalence rates of IP sexual abuse (Morgan, 2010). The low percentage of convictions for IP offenders is attributed partially to the manipulation and cunningness of IP offenders to shroud their victims from recognizing the abuse they suffer (Morgan, 2010). Offenders who have committed IP rape follow the definable characteristic patterns of manipulation, entitlement, self-centeredness, coercion, denial, blaming, and minimization (Bancroft, Silverman, & Ritchie, 2012). Therefore, in order to manipulate, confuse, and remain steadfast in their “grooming” of victims, a certain degree of psychopathy and intelligence may be required.

It was once thought that sex offenders were impaired in multiple areas of emotional intelligence (Puglia, 2005). However, recent research (Puglia, 2005) highlights that sex offenders have no significant difference in emotional intelligence scores as compared with control groups, and it may be that emotional deficits shown by some sex offenders are offense-specific. In other words, research (Puglia, 2005) indicates that sex offenders are not deficient in the domain of emotional intelligence. Recent research

(Bate, Boduszek, Dhingra, & Bale, 2014; Hare & Neumann, 2008; Salekin et al., 2004; Vitacco, Neumann, & Jackson, 2005) revealed strong positive associations between the interpersonal construct of psychopathy and increased levels of intelligence, including verbal intelligence.

In particular, psychopathy traits reflecting a superficial and deceitful interpersonal style were positively related to intellectual skills in the verbal realm and a nontraditional intellectual measure reflecting creativity, practicality, and analytic thinking... thus, Cleckley's hypothesis was partially supported by the data, when taking into account the facets of psychopathy and when examining intelligence from the perspective of traditional and more novel and contemporary intellectual models (Salekin et al., 2004, p. 731).

In a study by Loney et al., (1998) as mentioned in DeLisi, Vaughn, Beaver, and Wright (2010), psychopathic children demonstrated higher IQs than non-psychopathic children in regards to conduct problems. Conclusively, research (Bate et al., 2014; Cleckley, 1976; Hare & Neumann, 2008; Harpur, Hare, & Hakstian, 1989; Muñoz et al., 2008; Puglia, 2005; Salekin et al., 2004; Vitacco et al., 2005) found psychopathic individuals have increased levels of intelligence or similar levels of intelligence as non-psychopathic individuals (Puglia, 2005).

Without utilizing levels of intelligence in the same manner as non-psychopathic control groups, sex offenders might commit crime in view of the public where they risk easy detection or arrest. Instead, sex offenders draw upon levels of intelligence, notably verbal intelligence, in order to remain undetected and continue abusive and

psychologically deviant patterns such as economic control, a behavior more challenging to notice, yet nominally reported (Morgan, 2010). The offender must be calculating, premeditative, attuned to his surroundings, and aggressive in manners allowing him to be “forgiven” by his victims. Therefore, the presence of intelligence in offenders serves as a marker for higher-order cognitive functioning and subsequent skilled psychopathy. If severity of sexual deviance is positively correlated to levels of intelligence, the mental health field is implored to use more advanced curriculum tools to actuate change in the psychological sophistication of sex offenders. In other words, if sex offenders use intelligence in order to manipulate, deceive, and groom not only their victims but also their victims’ families, it would seem prudent to treat the psychopathic sex offender with more advanced curricula versus the current sex offender treatment requirements discussed later.

Significance of the Study

A review of the enormous costs associated with sex offender treatment for protecting public safety, and taxpayers may question whether the benefits outweigh the disadvantages. As previously discussed, a state of financial turmoil exists for a broad majority of the 20 states that spend more on offender treatment than education and healthcare (Associated Press, 2010). Research (Vitacco, Erickson, Kurus, & Apple, 2012) demonstrates the evolution of advancements in risk assessment in terms of reliability as well as Positive Predictive Validity. In quantitative psychology literature, reliability is the consistency of a measure; the reproducibility of true test scores (Tzeng & Welch, 1999). Positive Predictive Validity means that an instrument has high correlations with future

instruments of other constructs that are similar in nature (Korb, 2012). Additional funding over the past decade has strengthened the methodology with which offenders are evaluated for their level of risk of future reoffense or recidivism (Vitacco et al., 2012). Still while the prediction of future reoffense (risk prediction) has evolved to encompass evidence-based practices (Vitacco et al., 2012), the realm of treatment does not appear to have been influenced by the same level of scrutiny. The treatment (risk management) of sexually deviant and violent offenders may be lacking the pressures that once engulfed risk assessment.

The discrepancy of evidenced-based methodological approaches inherent in risk prediction (risk assessment) and lacking in risk management (treatment) may be explained as a result of the pressures and involvement by the legal system. The justice system has mandated risk predictors, or risk evaluators, to employ stricter standards of practice when advising the court on a defendant's likelihood of future risk of reoffense. These stricter standards go beyond structured professional judgment (clinical opinion) and include application of the scientific method (Vitacco et al., 2012). "In recent years, risk assessment for sex offenders has emerged as a major area of research, and various actuarial instruments have been developed that have good validity for predicting recidivism, such as the Static-99" (multiple references as cited in Beggs and Grace, 2008, pp. 684-685). Yet, the same pressures once placed on risk evaluators have not been imposed on post-sentencing management approaches, such as sex offender treatment as mandated by parole and probation (Vitacco et al., 2012).

With stricter standards employed in the adjudication determination of criminally

sentencing offenders, some have described the judicial process as punitive and retributive (Cowburn, 2015). “It would therefore appear that less emphasis is now being placed on the needs of the offender, and the balancing act between public protection and offender rights seems firmly weighted on the side against the offender” (Cowburn, 2015, pp. xvi–xvii). Nevertheless, if risk management programs (treatment) are not held to the stricter standard as mandated through risk assessment, providing treatment that is lasting and effective becomes not only lax but also negligent.

According to Cowburn (2015), the “community protection model” is the preeminent approach to sex offender treatment in the “Western World.” The community protection model is

Characterized by the use of monitoring and control, compulsory treatment, restriction, surveillance and longer than commensurate sentencing. Other punitive responses include civil commitment, residence restrictions, registration requirements, mandatory polygraph testing and ‘chemical castration,’ or to use its more correct and less emotive term, pharmacotherapy (pp. xvi–xvii).

A review of the colossal costs associated with implementing this model might lead one to question whether the benefits of sex offender treatment are outweighed by its costly disadvantages.

Present-day generally accepted modes for the treatment (risk management) of offenders seem to be credible in two (CBT and Risk, Need, and Responsivity) of three (Relapse Prevention) models being utilized. Significant gains have been made in risk management with the advent of the Risk, Need, and Responsivity (RNR) model

employing a treatment tailored approach to the individual offender (Brooks-Holiday, 2012). Such an approach accurately proved to identify the duration and frequency of treatment necessary for an individual's risk of reoffense. The RNR approach also aids in addressing the static and dynamic risk factors adding to the sexual offending (D'Orazio, 2012). Research cited that the RNR model was partially implemented "to allow for large-scale, cost-effective delivery to as large a group of appropriate offenders as possible" (Brown, 2010, p. 81). Yet even while the aim of offender treatment may be to encompass as many groups of offenders as possible, programs might lose sight of enhancing both the treatment efficacy and responsiveness for offenders who have greater intelligence and perhaps, higher intelligence subsequently. On the other hand, most treatment facilities utilize empirically supported treatments, such as CBT, in risk management of offenders (Brown, 2010). However, while empirically supported treatments are being utilized for offenders across treatment facilities, the implementation is not manualized and is significantly varied in the methodology between programs (Brown, 2010). The result is an egregious lack of standardization in the treatment delivery that exists (Brown, 2010). Ultimately, does such a lack of manualization of empirically-supported treatment render the once empirically supported treatment of CBT to be ineffective?

To the implementation of sex offender treatment: there is great variability from country to country and in some countries, such as the USA, from state to state and county to county [and] there is great variability across evaluation studies, which perhaps reflects a large variation in the impact of different programmes. (Brown, 2010, pp. 82-99)

Such data (Brown, 2010) mars the reliability of procedures used in the treatment and may ultimately diminish the validity of these treatment procedures.

Of greater concern, recent research (Laws & Marshall, 2003; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) found that one of the two treatment models utilized by the State of California for sex offender treatment, Relapse Prevention (RP), was both an outdated and inefficacious model of treatment when applied to sex offenders.

Consequently, present-day accepted models for the treatment of sex offenders fail in their ability to effect change in the sex offender population (Laws & Marshall, 2003; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) and thus impede the reduction of risk of recidivism. “Emerging research suggests that the traditional relapse prevention approach, not demonstrated to be effective to date... [and] is overly simplistic in its conceptualization of pathways to offending” (Yates, 2013, p. 93).

Since empirically supported treatment paradigms such as CBT exist in offender treatment (Brown, 2010), this researcher acknowledges some evidenced-based advancements (CBT and RNR) as having been made, and shifts attention to the *manner* in which other treatment models (RP) are being employed. Within the next section, this study will highlight the requirements and structure outlining the current curriculum for the treatment of sexual offenders. As dictated by the research, this study discusses egregious flaws in some of the current treatment of sex offenders. Subsequently, this study highlights PNI treatment as one potential direction for change necessary within the current accepted practices of the treatment of sexual offenders. Cognitive Behavioral Therapy is an already accepted model for the treatment of sex offenders (Brown, 2010),

and PNI treatment utilizes a CBT model as is discussed later. The PE of PNI espouses psychosocial treatment interventions consisting of PE, cognitive restructuring, and/or mindfulness techniques (Ader, Felten, & Cohen, 1991; Elsenbruch et al., 2005; Lewis, O'Sullivan, & Barraclough, 1994; Walker, 1998; Walker & Eremin, 1995).

Psychoneuroimmunology treatment is advanced sufficiently enough to cater to varying degrees of psychopathy and intelligence (emotional and intellectual) in the offender. With research support on how to moderate nervous and immune systems (Black & Slavich, 2016; Elsenbruch et al., 2005; Levin, 2010; Maier, 2012; Walker 1998; Walker, Heys, & Eremin, 1999; Zouikr, Bartholomeusz, & Hodgson, 2016), the result is that PNI treatment will be more effective in garnering the interest and facilitating empowerment in sex offenders. To reiterate, the implementation of PNI as a means of PE is one example of a new therapeutic modality that enhances treatment efficacy by reducing risk of recidivism.

Curriculum and Structure of Current Risk Management

Despite the research highlighting the RP model as being ineffective and outdated for sex offender treatment, the next chapter discusses how the RP model came to be two required models by the State of California, for the purposes of sex offender treatment, in the first place. The current problem inherent in this discussion becomes the treatment modalities with which treatment programs are executing CBT treatment to the risk management of sex offenders. Chapter 2 discusses extant research (Hanson, 1996; Hudson, Ward & McCormack, 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) highlighting the limitations in applying, as well as the lack of research in support for the use of, the RP model to the treatment of sex offenders. Given the sizeable research

catalog (Hanson, 1996; Hudson et al., 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) for the limitations of applying an RP model to the treatment of sex offenders, more criticism exists for the way in which offender treatment is executed. Recent research (Hollin, 2009) targets the rudimentary nature of manuals designed for the treatment of sex offenders. Still more researchers (Mann, 2009) emphasize obstacles in the current accepted standards of practice, particularly where treatment manuals are concerned. This study argues the very delivery of treatment manuals, by themselves, is problematic. Later exemplified, treatment manuals consist of one of two models (RP and RNR) making RP outdated and unfit for the treatment of sex offenders (Hanson, 1996; Hudson et al., 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013). Also discussed later, treatment manuals are reduced to verbiage written for a seventh-grader (Thomas & Hersen, 2003) and consequently may be too simplistic for the intellectual ability of many psychopathic offenders.

Designed to treat sexual psychopaths, state risk management programs are required to use outdated seventh-grade reading level curricula to attempt eradication of sexually deviant and manipulative, psychopathic behavior. Yet the level of deviancy found in sexual predators requires the offenders to utilize intelligence perhaps greater than that found to correlate with a seventh grade level of education. If the research (Bate et al., 2014; Hare & Neumann, 2008; Salekin et al., 2004; Vitacco et al., 2005) evidences a positive correlation between psychopathy and intelligence, are treatment manuals written in “seventh-grade reading level” (Thomas & Hersen, 2003) rendered ineffective for those sex offenders who need more advanced curricula is an important question. In

other words, if the current standardized curriculum of RP is designed to be understood by a seventh-grader, are treatment programs curtailing effectiveness of treatment targeting offender recidivism? Additionally, would treatment programs be more effective if the curriculum was matched to higher levels of psychopathy and scholastic aptitude?

The future of the risk management of sexual offenders begs change in the theory and execution of offender treatment. If risk management programs were to cater to a more deviant and psychopathic offender, by way of more comprehensive curricula designed for individuals of an average or greater than seventh grade level education, risk of recidivism may be reduced more than the current modus operandi elicits. Psychoneuroimmunology eagerly proves to be a new modality for PE enhancing treatment efficacy and reducing offender recidivism in court-mandated treatment. Specifically, PE will be the utility of CBT to support its effectiveness for reducing sexual offender recidivism. The key component of PE will be PNI. For participants, this study seeks to empower and educe offender insight into the most efficacious course of reducing the risk of recidivism.

Purpose of the Study

The purpose of this quasi-experimental study was to demonstrate how PE (specifically PNI) enhanced treatment efficacy thus reducing offenders' risk of recidivism rates in court-mandated treatment. The findings demonstrate how implementing PE for the plan of court-mandated treatment has a reducing effect on that offender's risk of recidivism. When offenders are taught the etiology of their offense behavior; why they do the things that they do; and strategies gained from emotional and behavioral self-

regulation through the education of PNI, offenders are less likely to reoffend. If “pills do not teach skills,” then medication cannot outlive the educational gains made through the PE of CBT. The PNI of PE should be a first response and last resort for offender treatment. When released into the community, the offender will be more empowered with PE to succeed during any momentary periods of unemployment when medication might have been a premium.

Research Questions and Hypotheses

This study is guided by the PNI research addressing the psychological modulation of immune function (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002a; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009). This research supports that individuals can psychologically alter their health and well-being, because of PNI processes, to affect immune function (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Kiecolt-Glaser, McGuire, Robles, & Glaser, 2002a; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009).

Psychoneuroimmunology research, which reifies affect regulation as an essential determinant of improving one’s chances of coping with difficulty (Kiecolt-Glaser et al., 2002; Maier, 2012; Sheeber et al., 2009), ultimately enhances treatment efficacy in court-mandated therapy. Thus, the client’s experience of positive affect may be a quintessential treatment intervention for treatment providers working with a court-mandated offender population. Modulating one’s emotion, also known as affect regulation (Sheeber et al., 2009) becomes an essential tool for meeting the needs of the court by teaching offenders

the skills necessary for emotional stability (<http://www.casomb.org/index.cfm>, 2016). By learning to foster positive valence of affect, the mandated offender has an improved chance of coping with difficulties (Maier, 2012; Sheeber et al., 2009). As has been stated in the literature, “Emotion-responsive hormones including the catecholamine (norepinephrine and epinephrine), adrenocorticotrophic hormone, cortisol, growth hormone, and prolactin can impel quantitative and qualitative changes in immune function” (Kiecolt-Glaser et al., 2002, p. 91). Negative emotion prompts the pituitary and adrenal glands to produce stress hormones causing changes in the body’s endocrine and immune systems (Kiecolt-Glaser et al., 2002). Therefore, the valence of emotion enhances or worsens the prognosis for disease and illness, and disease and illness affect emotion in a bidirectional way (Kiecolt-Glaser et al., 2002). A brief introduction to the etiology of the research questions and hypotheses follow.

The literature on PNI has exhibited that individuals who harbor negative affect decrease their immune system’s resilience to fight infection, ultimately causing inflammation because of negative emotion (Kiecolt-Glaser et al., 2002). Negative affect results not only because of physical stressors, but also because of psychological stressors as well (Kiecolt-Glaser et al., 2002). Negative affect, caused by stressful life experiences, can nurture stress. Stress causes increased levels of “epinephrine elevated plasma IL-6” (Kiecolt-Glaser et al., 2002). This evidence indicates the indirect relationship explaining how negative emotion causes stress, which causes an increase in the cytokine IL-6 generated by negative affect (Kiecolt-Glaser et al., 2002). However, enhancing one’s affect regulation through the implementation of specific PE has not been investigated as a

predictor of treatment outcome and subsequently a predictor of a reduction in offender recidivism.

Ultimately, a clinician adopting a PNI approach to PE of court-mandated offenders should enhance treatment efficacy. The enhancement of treatment efficacy would mean a decrease in the risk of recidivism in offender rating scales. The aim of this study is to find evidence for a reduction of the risk of recidivism after offenders have received PE on PNI processes, causing them to increase their chances for treatment benefit and survival. Since PNI answers how clients can intervene psychologically to benefit their physiology, risk of recidivism will be reduced when PNI research is incorporated into court-mandated treatment. For participants, this study seeks to empower and educe client insight into the most efficacious course of reducing the risk of recidivism by ultimately enhancing the judicial reasons for protecting our community. Using measures of reduction for the risk of recidivism as a dependent variable, the intervention of PNI treatment on human subjects remains unknown. As a result, this study posited the following research questions or research hypotheses.

Research Question 1: To what extent does implementing the PNI treatment intervention associate with decreased recidivism in court-mandated treatment?

Hypothesis 1H₀: There is no difference, or no effect, between the experimental and control group after implementing the PNI treatment intervention in the experimental group in court-mandated treatment.

Hypothesis 1H₁: Implementing the PNI treatment intervention in the experimental group

produces a statistically significant effect between groups (as measured by Level of Service Case Management Inventory (LS/CMI) scores and evaluating unstandardized regression beta coefficients). That is, test scores of the treatment group evidence a statistically significant difference between the experimental and control group, establishing strong evidence against the null hypothesis; $1H_0$ is rejected in favor of $1H_1$.

Research Question 2: If an effect between groups is found in Research Question 1, to what extent does increasing the PNI treatment dosage to 24 months modulate this effect or difference between the experimental and control group?

Hypothesis $2H_0$: There is no significant difference found in the effect between the experimental and control group, after increasing the PNI treatment dosage to 24 months in court-mandated treatment.

Hypothesis $2H_1$: Increasing the PNI treatment dosage to 24 months modulates a statistically significant effect or difference found between groups (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). Test scores of the treatment group exposed to 24 months of PNI treatment evidence a statistically significant difference in the effect found between the experimental and control group, establishing strong evidence against the null hypothesis; $2H_0$ is rejected in favor of $2H_1$.

Research Question 3: If an effect between groups is found in Research Question 1, is the effect altered based upon individual characteristics of the offender. Specifically:

- a) Does the effect found between groups differ based on demographic characteristics

(ethnicity, age) of the client?

- b) Does the effect found between groups differ based on the economic status (e.g., financial problems) of the client?
- c) Does the effect found between groups differ based on the offender having negative companions (procriminal support group)?

Hypothesis 3aH₀: There is no significant difference in the effect between groups based on the particular ethnicity, and age of the offender.

Hypothesis 3bH₀: There is no significant difference in the effect between groups based on the economic status (e.g., financial problems) of the client.

Hypothesis 3cH₀: There is no significant difference in the effect between groups based on the offender having negative companions (procriminal support group).

Hypothesis 3aH₁: There is a statistically significant effect found between groups that differ based on the particular ethnicity, and age of the offender (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). When controlling for variables: ethnicity and age of offenders, test scores evidence a statistically significant difference in the effect found between the experimental and control group, establishing strong evidence against the null hypothesis; 3aH₀ is rejected in favor of 3aH₁.

Hypothesis 3bH₁: There is a statistically significant effect found between groups that differ based on the economic status (e.g., financial problems) of the client (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). When controlling for variable: level of economic status (e.g., financial problems) of offenders, test scores evidence a statistically significant difference in the effect found between the

experimental and control group, establishing strong evidence against the null hypothesis; $3bH_0$ is rejected in favor of $3bH_1$.

Hypothesis $3cH_1$: There is a statistically significant effect found between groups that differ based on the offender having negative companions (procriminal support group) as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients. When controlling for variable: presence of negative companions of offenders, test scores evidence a statistically significant difference in the effect found between the experimental and control group, establishing strong evidence against the null hypothesis; $3cH_0$ is rejected in favor of $3cH_1$.

Definition of Key Terms

Cognitive-Behavior Therapy (CBT)- One of the most widely researched, evidence-based practices of psychotherapy (Butler, Chapman, Forman, & Beck, 2006), positing that the assessment and understanding of cognitive processes (thoughts, beliefs, and attitudes) was the mechanism of change for modifying behavior (Benjamin et al., 2011). A therapeutic intervention that challenges negative thinking in order to change maladaptive behavior to treat psychiatric disorders (Kendall & Hollon, 2013).

Psychoeducation (PE)- A therapeutic intervention focused on the “didactically skillful communication” of essential information within the framework of cognitive-behavioral therapy, that empowers clients with scientifically founded treatment expertise in as competent a demeanor as possible (Bäumel, 2006, p. S1).

Psychoneuroimmunology (PNI)- The study of how psychological factors modulate

immune function, health and disease, by addressing the relationship between the nervous, immune, and endocrine systems (Ader & Kelley, 2007; Gierloff, 2012; Koenig & Cohen, 2002; Leonard & Myint, 2009). Psychoneuroimmunology is the latest research supporting the efficacy of psychological influences on immune function (Kiecolt-Glaser et al., 2002). Psychoneuroimmunology is also defined as an “interdisciplinary biopsychosocial approach” to health and disease (Zachariae, 2009, p. 645) and “the study of emotions, their associated neural correlates... how they impact immunity and health and their correlations... between reduced stress and increased longevity” (Maier, 2012, pp. 6-43).

Recidivism- A paramount theory in criminal justice, indicating an individual’s regression into criminal behavior after being exposed to an intervention for a prior crime (“Recidivism and National Statistics”, 2016). For purposes of the present study, recidivating is defined as being re-incarcerated within one year of release into the community (Andrews, Bonta, & Wormith, 2004).

Sexual Offender- For purposes of the present study, the term *sexual offender* refers specifically to criminal offenders who have committed sexual offenses. In addition, for purposes of this study, the term *sexual offender* will be interchangeable with terms: *clients, offenders, patients, participants, and respondents*.

Valence of Emotion- A pleasant or unpleasant (valence) experience of emotional responding; a valuation of an experience of emotion; a central aspect of emotional

responding (Barrett, 2006). An intrinsic attractiveness (positive valence) or aversiveness (negative valence) of a circumstance or item (Frijda, 1986).

Chapter 2: Review of the Literature

Court-Mandated Treatment

Important for our discussion of implementing PNI as a means of PE for reducing offender recidivism was the choice of our sample population. Probationers and Parolees afforded us the finest opportunity to test this experiment. They became our target sample when selecting participants for multiple reasons. One, probationers and parolees are a population outside of institutions yet still required by the courts to attend mandated treatment. Two, this population meets with us in an outpatient community setting, thus offering clinicians more freedom to implement such an experiment. This means that clients in our experiment will not be in a state of learned helplessness that comes from incarceration. Rather, they are on probation and that gives them hope that they can overcome the present restrictions. Studies (Hall, 1995; Wood, Welman, & Netto, 2000) found that treatment in the community showed greater efficacy than treatment provided in institutions. In an institutionalized setting, it may be more difficult to enhance a client's affect if the environment behind bars affects emotion. Therefore, not institutionalized in a confined setting, it behooves this population to learn the skills necessary to prevent their recidivism to jail or prison. Thus, a look at the current research and efficacy for CBT reducing recidivism provides a foundation for further research.

One might ask why this study utilizes sex offenders among the groups required to participate in court-mandated treatment, and the answer is as important as is the need for

this study. Sex offenders are found to reoffend routinely in crimes unrelated to sex offenses (Barron, Hassiotis, & Banes, 2002). In a study by Day (1994) concerning 47 sex offenders, 50% had subsequent reconviction for offenses other than sex crimes (Barron et al., 2002, P. 456). "Data... showed that property crimes appear to diminish whilst violence, arson and sexual offenses were increasing in offenders... who had served sentences" (Lund, 1990 as cited in Barron et al., 2002, p. 456). Thus, current research indicates that sex offenders are still reoffending long after their treatment mandates, which requires new research to investigate the efficacy of the offenders' current treatment mandates. Sex offenders became our choice of offender groups because they were mandated to treatment in weekly groups. Psychoneuroimmunology as a means of PE can be provided to the offenders in their current group setting with current federal and/or state curricula mandates already in place.

The Curriculum and Structure of Current Treatment (Risk Management) Of Sexual Offenders: "The Good and The Bad" Explored

Despite the research highlighting the RP model as an ineffective and outdated treatment model for sex offender treatment, this this section begins with a discussion regarding how the RP model came to be one of two required models by the State of California, for the purposes of sex offender treatment, in the first place. The California Penal Code Sections 290-294, sanctions the Sex Offender Registration Act that defers to State Authorized Risk Assessment Tools for Sex Offenders (SARATSO) requirements for determining what risk assessments to use for detecting sex offender risk (Reuters, 2014).

The term SARATSO refers to evidence-based, state authorized risk assessment

tools used for evaluating sex offenders. State law established the SARATSO (State Authorized Risk Assessment Tool for Sex Offenders) Review Committee, to consider the selection of the risk assessment tools for California. (<http://www.saratso.org>, 2016).

Within this 47-page, single-spaced document consisting of 20,558 words, the term “assessment” is mentioned forty-six times and the term “treatment” is mentioned only four times (Reuters, 2014). To determine the implementation of treatment for community sex offenders on probation and parole, the Sex Offender Registration Act defers to the California Sex Offender Management Board (CASOMB) requirements for certifying treatment programs to execute the treatment (Reuters, 2014). “On September 20, 2006, Governor Arnold Schwarzenegger signed Assembly Bill 1015, which created the CASOMB. The bill had been introduced by Assembly Members Judy Chu and Todd Spitzer and passed the California Legislature with nearly unanimous bipartisan support” (“California Sex Offender,” 2007). Given that the word “assessment” is mentioned roughly ten times the amount that the word “treatment” is mentioned in the California penal code (Reuters, 2014), prior research (Beech, Fisher, & Thornton, 2003; Beggs & Grace, 2008; Hanson & Thornton, 1999; Vitacco et al., 2012) indicating the evolution made in risk assessment is substantiated.

According to the CASOMB Treatment Program Certification Requirements (Rev. January 2014), it provides a 17-page manual consisting of 6,695 words, dictating the requirements necessary to be certified as a sex offender treatment program for community sex offenders throughout the state of California. Without the necessary

approval and certification by CASOMB, treatment programs are prohibited from treating sex offenders released into the community on probation and parole (Reuters, 2014).

According to this 17-page manual, in terms of the RNR model of sex offender treatment, the word “risk” is referenced 14 times; the word “need” is referenced nine times and the word “responsivity” is referenced seven times. Second to the RNR model required of sex offender treatment exist the RP model (<http://www.casomb.org/index.cfm>, 2016).

Consequently, in terms of the RP model of treatment, the word “relapse” is referenced five times and the word “prevention” is referenced seven times. There are no other models of CBT treatment interventions addressed in the CASOMB requirements for sex offender treatment (<http://www.casomb.org/index.cfm>, 2016). The current problem inherent in this discussion becomes the treatment modalities that programs are using to execute CBT treatment for the risk management of sex offenders. The next section discusses extant research (Hanson, 1996; Hudson et al., 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) highlighting the limitations in applying, as well as the lack of research in support for the use of the RP model to the treatment of sex offenders.

[RP] is a cognitive-behavioral approach that was originally developed for addictive behaviors such as alcohol use, drug use, and cigarette smoking (multiple references as cited in Wheeler, George & Marlatt, 2006, p. 233-234)

In the early 1980s, the first reports on juvenile offenders and the struggles to devise social learning theories of sexual offending manifested (Marshall & Laws, 2003). Additionally, the extension of treatment interventions for these unique populations began to increase (Marshall & Laws, 2003). The 1980’s also experienced the development of

treatment programs for female sexual offenders as well as developmentally disabled offenders (Marshall & Laws, 2003). A student of Alan Marlatt, the founder of the RP model for alcoholics (Marlatt, 1982), Janice Marques presented the first-ever variation of Marlatt's RP model for sex offenders at a forensic mental health conference in 1982 (Marshall & Laws, 2003). In 1983, Janice Marques joined Bill Pithers and together they published the first scholarly report for applying the RP model for the treatment of sexual offenders (Marshall & Laws, 2003; Pithers, Marques, Gibat, & Marlatt, 1983). In addition, in the early 1980s, Marques in California and Pithers in Vermont, created initial treatment programs that served as the prototypes for the application of RP frameworks for the treatment of sexual offenders (Marshall & Laws, 2003). Consequently, the California Department of Mental Health requisitioned Janice Marques to establish the Sex Offender Treatment and Evaluation Project (SOTEP), the grandest application and assessment of sexual offender treatment ever attempted (Marques, 1984; Marshall & Laws, 2003). The SOTEP program published articles throughout the 1980's (Marques, 1988; Marques, Day, Nelson, & Miner, 1989; Marques, Day, Nelson, & West, 1993, 1994; Marques, Nelson, Alarcon, & Day, 2000; Marques, Nelson, West, & Day, 1994), clarifying the benefits of using a RP model for sex offender treatment (Marshall & Laws, 2003). Throughout the 1980s, elements of the RP approach to sex offender treatment concluded in a major book by Law (Laws, 1989), which discussed the clinical aspects in applying the RP model (Marshall & Laws, 2003).

The next decade saw an outburst of sex offender treatment programs utilizing the RP approach and the 1990's experienced an expansion of the publication of research

articles on RP model application (Marshall & Laws, 2003). Clinicians conducting the treatment of sex offenders unquestioningly accepted the RP model as a guide explaining the offense pathways of their patients (Polaschek, 2003). However, publications in the mid-1990s soon began to discredit the adaptation of RP for the treatment of sex offenders based on a lack of evidence for its efficacy with sex offenders (Laws & Marshall, 2003; Laws & Ward, 2006; Yates, 2005, 2007, 2013; Yates & Ward, 2007), as well as a lack of conclusive empirical support for adapting RP to sex offender treatment (Polaschek, 2003).

Pithers et al. (1983) alluded to research on the precursors of relapse in sex offenders, but it appears that this research was not published... [thus] it is difficult to establish the extent to which the adaptation was informed by research into the behavior of sexual offenders rather than of alcoholics. (Polaschek, 2003, p. 362)

Research as cited in Yates (2013), details the inability of using the RP model for the treatment of sex offenders.

RP as applied to sexual offenders represents a ‘one size fits all’ approach and does not adequately address the multiple treatment needs with which offenders present or the pathways to offending they follow, and it incorrectly regards sexual offending behavior as an addictive process, and presents such conceptual difficulties as defining what constitutes a lapse (Laws & Marshall, 2003; Laws & Ward, 2006; Marshall & Laws, 2003; Yates, 2005; Yates & Kingston, 2006; Yates & Ward, 2007 as cited in Yates, 2013)

Polaschek (2003) proclaims that no available research accredits RP as having any

significant effect on reducing recidivism in the sex offender population. Additionally, as cited in Laws, Hudson, and Ward (2000, p. 5), Polaschek (2003) adds “its very popularity, however, has been its undoing” (p. 361). Yet, if the RP model was unfit to be applied to the offense cycle of sex offenders, why then was it implemented?

According to research (Hanson, 1996; Hudson and Ward, 2000), the RP model gave hope to clinicians working with sex offenders with a theory of the offense process. Additionally, the RP model hailed from CBT, which subsequently provided a familiar framework for explaining sexual offending (Eccles & Marshall, 1999; Hanson, 2000; Polaschek, 2003). The strength of the RP model is its link to CBT (Polaschek, 2003). In the 1970s and prior to the onset of the RP model, CBTs were the only treatment modalities that proved any effectiveness in reducing recidivism (Polaschek, 2003; from Furby et al., 1989). Thus, RP was considered “credible” given its very descent from CBT and for offering procedures on how to conduct sex offender treatment (Polaschek, 2003). Moreover, RP carried high face validity and was easily understandable for treatment programs (Polaschek, 2003). “Remarkably, in hindsight, these factors were sufficient to sustain years of use with little in the way of systematic theoretical scrutiny or empirical evaluation of its efficacy” (Polaschek, 2003, p. 362). Unfortunately, conventional sex offender treatment programs have not kept pace with the expanding research addressing the ineffectiveness of RP for the treatment of sex offenders (Polaschek, 2003). Of greater concern and as previously discussed, treatment provider programs are required to use a model for sex offender treatment (<http://www.casomb.org/index.cfm>, 2016) that is both outdated and unsound.

Revisiting the discussion above regarding the CASOMB Treatment Program Certification Requirements (Rev. January 2014), on page 16 of 17 in the manual, it is written “The treatment plan shall be designed to assist and guide offenders to address any or all of the following: 1. Accept responsibility for their behavior and offenses(s).” However, new research (Yates, 2013) highlights that treatment goals such as victim empathy and “accepting responsibility” are disputable because they have garnered insubstantial research backing for their effect on decreasing recidivism. Furthermore, on page 16 of 17 in the CASOMB Treatment Program Certification Requirements (Rev. January 2014), it is written: “The treatment plan shall be designed to assist and guide offenders to address any or all of the following: ‘7. Modify thinking errors, cognitive distortions, and pro-offending attitudes and schema.’” Yet, research (Yates, 2013) draws from Mann and Beech (2003), which describes cognitive schema as symbolizing a person’s values and beliefs, whereas cognitive distortions are the manifestation of schema. Therefore, research (Gannon, 2009) rejects the treatment target of “modifying cognitive distortions” because treatment should instead aim to modify schemas (Yates, 2013). Given the sizeable research (Hanson, 1996; Hudson et al., 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013) for the limitations of applying an RP model to the treatment of sex offenders, more criticism exists for the way in which offender treatment is executed.

Extant literature (Hollin, 2009) targets the rudimentariness of manuals designed for the treatment of sex offenders. Hollin (2009) recites arguments made for the inherent restrictions in treatment curricula, describing how treatment manuals dominate and

restrict the clinician's ability to share his or her own personal mastery of therapy.

Marshall maintains that manuals stifle innovation, that manuals can become quickly outdated as the research base expands, that manuals inhibit skilled practitioners and that they do not, some might say *cannot*, capture key clinical skills such as the expression of warmth and empathy. (p. 134)

According to Hollin (2009), taking a greater psychotherapeutic stance with offenders would have multiple benefits. Such benefits would include increased responsiveness, the teachings of new therapeutic concepts to further treatment efficacy, and a general enhancement in treatment that would decrease recidivism risk (Hollin, 2009). According to Hollin (2009), analysts promote a stronger relationship between sex offender treatment and research as a way at reducing sexual offending. Still more researchers (Mann, 2009) emphasize obstacles in the current accepted standards of practice, particularly where treatment manuals are concerned. "Many manualized programs have been demonstrated to be effective; yet there is still considerable opposition to the idea of reducing complex human interaction to 'painting by numbers' (Drozd & Goldfried, 1996; Silverman, 1996)" (Mann, 2009, pp. 121-122). This study argues the very delivery of treatment manuals, by themselves, is problematic. To recap, treatment consists of one of two treatment models, RP or RNR, (<http://www.casomb.org/index.cfm>, 2016). However, the use of the RP model lends the current state-required treatment curricula to be both outdated and unfit for the treatment of sex offenders (Hanson, 1996; Hudson et al., 1999; Marshall & Laws, 2003; Polaschek, 2003; Yates, 2013). Secondly, treatment manuals are reduced to verbiage written for a seventh-grader (Thomas & Hersen, 2003) and

consequently may be too simplistic for the intellectual ability of most psychopathic offenders.

According to the American Psychological Association's ethical and legal principles, treatment curricula must be written at "no more than seventh-grade reading level" and information is to be transferred in elementary language readily understood by clients (Thomas & Hersen, 2003, p. 281). Authors clarify that the "seventh-grade reading level" requirement is to ensure that all clients have the access and ability to understand their treatment (Thomas & Hersen, 2003). Yet if the research (Bate et al., 2014; Hare & Neumann, 2008; Salekin et al., 2004; Vitacco et al., 2005) previously discussed evidences a positive correlation between psychopathy and intelligence, are treatment manuals written in "seventh-grade reading level" (Thomas & Hersen, 2003) rendered ineffective for those sex offenders who need more advanced curricula? In other words, if the current standardized curriculum of RP is designed to be understood by a seventh-grader, are treatment programs curtailing effectiveness of treatment targeting offender recidivism? Additionally, would treatment programs be more effective if the curriculum was matched to higher levels of psychopathy and a scholastic aptitude?

The future of the risk management of sexual offenders begs change in the theory and execution of offender treatment. Designed to treat sexual psychopaths, state risk management programs are required to use outdated seventh-grade reading level curricula to attempt the eradication of sexually deviant and manipulative psychopathic behavior. Yet, the level of deviancy found in sexual predators requires the offenders to utilize intelligence at a perhaps greater than seventh grade level education. However, before PNI

can be shown as the choice of treatment for court-mandated clients, a review of the literature on the treatment efficacy of PE should be honored. After all, it will be the PE of PNI, which will enhance treatment efficacy and reduce offender recidivism in court-mandated treatment.

Psychoeducation

Psychoeducation (PE) has received much attention in the literature, having been researched extensively under the prescript of CBT. Cognitive-Behavior Therapy is one of the most widely researched, evidence-based practices of psychotherapy (Butler et al., 2006), positing that the assessment and understanding of cognitive processes (thoughts, beliefs, attitudes) is the mechanism of change for modifying behavior (Benjamin et al., 2011). It is often defined as a therapeutic intervention that challenges negative thinking in order to change maladaptive behavior to treat psychiatric disorders (Kendall & Hollon, 2013).

As a core definition, cognitive-behavioral therapy is defined as those sets of therapeutic procedures that (a) embody theoretical conceptualizations of change that place primary importance on cognitive processes and (b) procedurally target at least some therapeutic maneuvers, especially at altering aspects of cognition.

(Ingram, Kendall, & Chen, 1991, p. 511)

On the other hand, PE is defined as a therapeutic intervention focused on the “didactically skillful” communication of essential information within the model of CBT (Bäumel et al., 2006). Psychoeducation aims to empower clients with scientifically founded treatment expertise in as competent a demeanor as possible (Bäumel et al., 2006).

Authors add,

Psychoeducation signifies a 'specific basic psychotherapy' for... patients, which capacitates their self-competent, well-informed, structured, and successful involvement in the modern therapeutic options which [are offered]. For this reason, psychoeducation is conceived as a tool for an optimal combination of the self-help potential of the afflicted and their relatives on the one hand and instances of professional help on the other hand]. (Bäuml et al., 2006, p. S1)

Barron et al. (2002) researched treatment efficacy and the results of recidivism rates after sex offenders with intellectual disability were treated with group CBT. Barron et al. (2002) found from the published research (Iverson & Fox, 1989; Lund, 1985; Reiss, 1990) that a higher rate of mental illness existed in the criminal population when compared to the general population. Researchers (Barron et al., 2002) found testimony by Lund (1985) that "...mental illness may be a significant contributing factor to the offending behavior" (p. 457). Therefore, CBT should aim to reduce offender risk of recidivism by treating both the mental illness as well as the offense behavior. In one sentence, Barron et al. (2002) summarizes the importance of an educational intervention for group treatment of sex offenders, "Some offending is undoubtedly accounted for by unsophisticated attempts to establish a sexual relationship, and therefore, educational interventions and training might be expected to yield significant results for this group" (p. 457). Cognitive behavioral therapy therefore becomes a premiere intervention for reducing recidivism because it involves PE. The importance of sex education on treatment results with sex offenders is seldom highlighted in treatment groups (Barron et

al., 2002; Bremble & Rose, 1990; Charman & Clare, 1992; Griffiths et al. 1985, 1989; Swanson & Garwick, 1990). Yet, Barron and colleagues (2002) found research by Lindsay et al. (1992) that detailed how non-offenders treated with a structured sex education component in their therapy yielded improved sexual knowledge after a 3-month post-treatment follow-up. If PE can prove beneficial to non-offender treatment groups, then it can be posited that PE can boast effectiveness with sexual offending treatment groups. Despite the limited evidence available, Barron et al. (2002) insists that group CBT offering a strong PE component may describe the best treatment intervention for sex offenders. Harris et al. (1998)

concluded that: the results of humanistic and psychodynamic treatments are quite discouraging . . . it is clear that these treatments do not reduce violent and sexual reoffending by rapists and child molesters . . . they may even increase the likelihood of new sexual offenses (pp. 94-95) (Wood et al., 2000, p. 32).

In their article, (Wood et al., 2000) emphasized the importance of utilizing PE for the treatment of sex offenders mandated to court-ordered therapy. “The introduction of PE, the acknowledgement of the role of fantasy, and other developments led to the evolution from behavioral to cognitive-behavioral treatments” (p. 34). Given that CBT highlights the importance of RP, CBT has subsequently become the premier choice of treatment for sex offenders (Wood et al., 2000). Wood and colleagues research (2000) posits the CBT assumption that all behaviors and sexual offenses are deciphered by cognitions and emotions. Words by Wood et al. (2000) are especially important given this current study emphasizing the efficacy of PNI on improving affect regulation. Wood

et al. (2000) continues:

Cognitive-behavioral treatment emphasizes internal events- perceptions, thoughts, fantasies, feelings, urges, values, beliefs- and posits that such events not only reliably precede offensive behavior, but are also events that can be reliably changed, controlled, or both. Appropriate control can be defined as immediate modification of tyrannical thoughts (Horney, 1937), irrational self-talk (Ellis, 1962), thinking errors (Yochelson & Samenow, 1976), or cognitive distortions (Abel et al., 1989). Cognitive-behavioral therapies help offenders identify the cognitive and emotional precursors that predict and support sexual deviance (Hildebran & Pithers, 1992), and the relationship between sexual deviance and sexual offending. (p. 34)

Wood et al. (2000) recognizes that models implemented for the treatment of addiction influenced the current RP plans offered for sex offender treatment using CBT techniques. In this same fashion for RP, sexual offending is characterized as the result of cognition, affect, and behavior (Wood et al., 2000, p. 34).

In their study, Aho-Mustonen et al. (2011) examined the treatment outcomes of group PE on forensic patients with Schizophrenia. Cognitive-Behavioral Therapy is often known as a key therapeutic intervention among people with Schizophrenia, so an examination of group PE, a by-product of CBT, seems fruitful for determining its effect on forensic populations.

An important focus of rehabilitation of mentally ill offenders is prevention of further crime (Duncan et al., 2006), and greater patient understanding of their

mental illness, of the importance of medication and more positive attitudes towards treatment may improve this as well as health outcomes. In the treatment of both forensic and non-forensic patients with schizophrenia, adherence-focused PE is needed (Mohamed et al., 2008; Repo-Tiihonen et al., 2004; Schennach-Wolff et al., 2009 as cited in Aho-Mustonen et al., 2011, p. 164)

At 3-month post-treatment follow-up, participants in the experimental group treated with group PE demonstrated positive gains on knowledge about their illness, self-esteem, and insight into their illness (Aho-Mustonen et al., 2011). Moreover, the lack of alarming side effects in combination with the positive treatment outcome gave credibility to the efficacy of CBT interventions on forensic populations (Aho-Mustonen et al., 2011). In addition, the most severely ill of the patient population showed benefit in being able to join the PE group (Aho-Mustonen et al., 2011).

The treatment efficacy of PE on bolstering knowledge and compliance for individuals mandated to treatment was further reified by Aho-Mustonen et al. (2000) in the works of Merinder (2000). Aho-Mustonen et al. (2000) declare, “insight into an illness may affect a patient’s adherence to treatment, play an important role in RP and, thus, affect outcome of schizophrenia.” Other evidence (Jennings et al., 2002) demonstrates the efficacy of PE specifically for offenders carrying a dual-diagnosis of schizophrenia (Aho-Mustonen et al., 2011). Jennings et al. (2002) describe three contributions for this greater efficacy: positive influence on offenders’ knowledge, increase in receptive beliefs towards medication, and insight. In another study (Vallentine et al., 2010), PE for offenders with psychiatric disorders enabled participants to dive

deeper in their cognitive processing. Years after the study concluded, patients reported treatment gains made from their intervention of PE, most notably their capacity to understand new material about their disorder (Aho-Mustonen et al., 2009).

Vallentine et al. (2010) found in their study of PE groups for detained offender patients with psychiatric disorders that most of these patients engaged in further psychological work after the intervention, which was cautiously interpreted as a trend towards openness to engagement. (Aho-Mustonen et al., 2010, p. 172)

Participants, despite the acuity of their mental illness, joined the PE groups reporting of favorable feedback concerning their engagement (Aho-Mustonen et al., 201). Of all the offenders involved with the intervention of PE, each finished the treatment with positive reflections (Aho-Mustonen et al., 201).

In another study by Michalak et al. (2005), researchers investigated the treatment outcomes on quality of life after participants with bipolar disorder were treated with group PE. Results from this study (Michalak et al., 2005) reflect a 5-point increase in scores pertaining to participant reported quality of life after group PE was implemented. Results also indicated “group PE may be a useful adjunct to pharmacotherapy in this patient population” (Michalak et al., 2005, p. 95). Further results of their study showed that participants’ scores markedly increased in areas of physical functioning, general satisfaction, and improved functioning following group PE treatment. “Although pharmacology forms the bedrock of BD treatment (10, 11), there is a clear need for other treatment modalities that augment the effects of medication in this complex psychiatric condition” (Michalak et al., 2005, p. 96).

According to Michalak et al. (2005), new research emphasizes the efficacy of PE as a stand-alone treatment for Bipolar I and II. Michalak and colleagues (2005) reinforce findings that group PE, “encompassed by CBT, reflects a more pronounced specific effect on physical functioning” (p. 96). One specific treatment gain from group PE that the Michalak et al. (2005) study found was that PE of participants’ “management of side effects, adherence, general health, activity schedules and sleep hygiene” (p. 96) enabled participants to make expedient changes in their activities of daily living to improve their physical functioning.

Psychotherapy Triumphs Medication

Psychotherapy or talk therapy continues to prove greater treatment response than medication. A look at the outcome research (Turner, Bingham, & Andrasik, 2000; Zernig et al., 2008) of psychotherapeutic treatment rivaling other forms of interventions, including medication, is of chief importance. Such research (Turner, Bingham, & Andrasik, 2000) emphasizes the use of therapeutic interventions for reducing offender recidivism. This research (Turner, Bingham, & Andrasik, 2000; Zernig et al., 2008) should compel treatment providers of court-mandated populations to consider psychotherapy before medication as a first response with longer-lasting treatment gains.

In his article, Zernig et al. (2008) compared the efficacy of slow-release bupropion (Zyban®) with that of a short psychotherapeutic intervention, PDM®. Bupropion is widely known as the most effective medication at enabling one to quit smoking (Zernig et al., 2008). Zernig et al. (2008) found that psychotherapeutic intervention proved 3-times more effective in a 12-month continued smoking abstinence

as compared with Bupropion. The measurement with which the author (Zernig et al., 2008) calculated the outcome was the Russell standard. There were a myriad of variables that affected these outcomes, one of which was the fact that 38% rejected the medication given to treat the smoking addiction (Zernig et al., 2008). Regardless, this study (Zernig et al., 2008) proved that psychotherapeutic intervention provided a different and seemingly better option to quitting smoking than pharmacological aids.

Psychotherapeutic intervention was less expensive and produced greater sustainability of smoking cessation than did its drug of choice for stopping the addiction (Zernig et al., 2008). Psychotherapeutic intervention also hails as a more effective intervention for stopping smoking in circumstances where participants reject the kind of medication in use to treat their substance dependence (Zernig et al., 2008). Yet, the literature does not exist on implementing affect regulation as a means of PE for a population of court-mandated participants.

Research by Turner, Bingham, & Andrasik (2000) details the current research highlighting the significance that therapeutic interventions play in reducing an offender's risk of recidivism. The study examined two different groups, each with 100 sex offenders in each group. The first group was subject to maintaining a close working relationship with the offender's probation officer and the non-equivalent control group was not subjected to this treatment as a condition of the court. The study found that the experimental group having the closer-supervision by their probation officer significantly reduced those offenders' risk of recidivism.

The most important finding of this study is that this short-term community-based

treatment program is effective in reducing sexual crimes while maintaining a close working relationship with the courts and the probation officers responsible for tracking the offender... Main therapeutic interventions utilized in this study were victim empathy skills training, sexual reorientation toward appropriate sexual behaviors through cognitive retraining, developing more adaptive emotional responses through group interaction and feedback, and particular emphasis on relapse resistance through stress inoculation and recognition of potentially compromising situations. (Turner, Bingham, & Andrasik, 2000, p. 221)

In the end, it may all come down to the relationship that an offender has with his or her therapist.

The strength of the next study (Cheung & Brandes, 2011) is its exploration into identifying the different multidisciplinary interventions used that focus on increasing treatment efficacy for juvenile sex offenders. Factors that treatment providers can use in mandated treatment programs are examined and proven effective at enabling juvenile offenders' opportunities of rehabilitation (Cheung & Brandes, 2011). These factors include therapeutic coordination, patient communication, and outcome-focused protection (Cheung & Brandes, 2011). The study posits that identification of the client's patterns in each area or domain can advise the clinician on how to develop an intervention that is case-specific or client-specific (Cheung & Brandes, 2011). Adding dimensions to the treatment model made the treatment more effective because the intervention was based upon the client's needs, risk and responsivity, as well as their

calculated treatment plan (Cheung & Brandes, 2011). Given that each client had varying protective and risk factors, treatment interventions aimed at addressing these factors prompted better treatment outcomes (Cheung & Brandes, 2011). As proven, the literature in these articles begins to shape the evidence with which initial arguments are based in favor of PE enhancing treatment gain in court-mandated therapy. In two of the three studies indicated, pharmacological treatment was not utilized and yet treatment efficacy was still achieved or increased.

Given the results for the efficacy of PE on court-mandated treatment, we turn our attention to the research supporting this study's argument, which implores state and local agencies to use a more advanced curriculum for the treatment of sex offenders. If higher intelligence is either correlated or causal to greater degrees of psychopathy, perhaps the focus of treatment should target more intellectually developed patients. In other words, if severity of sexual deviance is correlated positively with levels of intelligence, the mental health field is implored to use more refined curricula tools to actuate change in the psychological sophistication of sexual offenders. With data revealing the definable characteristics of IP sex offenders whom are accountable for the bulk of adult serious sex offenses (Morgan, 2010), changing the paradigm of sex offender treatment to a more advanced curricula, may ultimately have lasting effects on reducing the risk of recidivism.

More Skilled Psychopathy Requires Advanced Treatment Curricula

Intelligence, An Aggravating Factor For Psychopathy

The idea positing that higher intelligence exists in offenders who have greater severity of

psychopathy is not unique to the research literature. The connection between psychopathy and intelligence has remained controversial among researchers (Bate et al., 2014; Beggs & Grace, 2008; Spironelli, Segrè, Stegagno, & Angrilli, 2014). Other research (DeLisi et al., 2010) finds increasing data showing a wavering association between intelligence and psychopathy that is derived by the individual criterion of psychopathy. The interplay between intelligence and psychopathy has garnered contradictory backing in the research for decades (Beggs & Grace, 2008). "...According to some [researchers], given psychopaths' great ability to fake, manipulate and injure others for their own advantage, their intelligence should be correlated positively with their level of psychopathy" (Spironelli et al., 2014, p.111). Bate et al. (2014) cite Steinberg and Schwartz (1976) who found that psychopaths could regulate their physiological responses in order to garner test results that aid their interests. Further research (Salekin et al., 2004) suggests degrees of intelligence as a moderating factor for psychopathy. Yet, regardless of which side one rests on the long-standing debate between the interaction of intelligence and psychopathy, it is important not to overlook the protective factor that intelligence may serve for reducing an offender's risk of recidivism (Beggs & Grace, 2008). "...Intelligence might be considered as a protective factor for recidivism—that is, above-average intelligence can mitigate the risk associated with relatively high PCL-R scores" (Beggs & Grace, 2008, p. 693). The "PCL-R" abbreviation stands for the Revised Psychopathy Checklist (Hare, 1980). The Revised Psychopathy Checklist (PCL-R) is a reliable and valid instrument for measuring the construct of psychopathy in male criminal populations, consisting of a 20-item scale scored from interview and file information (Hare et al.,

1990).

As early as 1941, Cleckley posited that the genuine psychopathic offenders possess “good” intelligence (Salekin et al., 2004). Cleckley (1941) suggested that the psychopath “is alert, usually more clever than the average person, and of a superior general objective intelligence, whether this is estimated by psychometric tests or by hearing him reason or talk” (p. 240). According to Cleckley (1941), psychometric tests of psychopathic individuals regularly show them as having superior intelligence. Cleckley (1941/1976) argued that the traits of being more clever and superior in general intelligence promoted the psychopath’s glibness, superficiality, and strength of manipulation. The psychopath is a skilled, charming manipulator who will often exhibit good sense, sound intelligence, and high capabilities (Cleckley, 1976). To substantiate some of Cleckley’s claims, recent research (Hare & Newman, 2008) reports:

Indeed, perhaps the first empirical support for some of Cleckley’s speculations about emotion was provided by a PCL study of psychopathy (Williamson et al. 1991). Almost all of the subsequent studies of affective processing in psychopaths have been based on the PCL-R, with findings that are, in the main, consistent with Cleckley. (p. 227)

In the *Journal of Clinical Child and Adolescent Psychology*, Salekin et al. (2004) further highlighted studies from Cleckley (1941). “Cleckley believed that these intellectual abilities furnished the psychopath with the rational power necessary to charm, manipulate, and effectively deceive and con others” (Salekin et al., 2004, p. 737). According to Salekin and colleagues (2004), Cleckley’s (1941) study investigated the

connection between psychopathy and intelligence in 122 adolescent detainees. Novel intelligence measures were administered to assess for varying intelligence constructs (e.g., traditional and triarchic intelligence) (Salekin et al., 2004). Cleckley's (1941) findings demonstrated psychopathy and intelligence as connected in meaningful ways (Salekin et al., 2004). "In particular, psychopathy traits reflecting a superficial and deceitful interpersonal style were positively related to intellectual skills in the verbal realm" (Salekin et al., 2004, p. 731).

Salekin et al. (2004) predicted psychopaths as possessing higher verbal and creative abilities. As researchers (Salekin et al., 2004) envisioned, results indicated Cleckley's (1941) previous theories connecting intelligence to psychopathy could be somewhat accurate. Salekin and colleagues (2004) discovered psychopathy in adolescent detainees was associated with verbal and triarchic measures of intelligence. Salekin et al. (2004) identified positive correlations established among psychopathy and measures of the K-BIT's verbal intelligence subscale. "The findings fit well with the clinical theory of psychopathy provided by Cleckley (1941), suggesting that those psychopathic individuals with the hallmark interpersonal characteristics of the syndrome are verbally facile and intelligent" (Salekin et al., 2004, p. 740).

Claims of a significant positive correlation between psychopathy and intelligence are logical given the theoretical notion of psychopathy. Muñoz et al. (2008) honors past research (Cleckley, 1976; Harpur, Hare, & Hakstian, 1989; Salekin et al., 2004) writing, definitions of psychopathy focus on the presence of specific affective (e.g., callousness, unemotionality, and lack of empathy and remorse), interpersonal

(manipulativeness, lying, and a grandiose sense-of-self) and behavioral features (e.g., impulsivity, irresponsibility) and often include average to above-average intelligence as one characteristic that distinguishes individuals with these features from other antisocial individuals. (p. 414)

In their study, Muñoz et al., (2008) examined the relationships of verbal abilities and psychopathy as moderating factors for violent delinquency. With a sample of 100 custodial adolescent males, Muñoz and colleagues (2008) assessed detainees on self-reported delinquent behaviors and psychopathic traits. Intelligence tests, specifically receptive vocabulary, were also administered. Muñoz et al. (2008) featured a longitudinal study by Lahey et al. (1995) that demonstrated a relationship between intelligence and a family history of antisocial behavior as factors forecasting conduct disorders in adolescents age 7-12. Prior research (Lahey et al., 1995; Muñoz et al., 2008) chronicled higher degrees of intelligence as related to more serious antisocial behavior. Muñoz et al. (2008) substantiate prior claims (Lahey et al., 1995) by introducing new information from Johansson and Kerr (2005). According to Johansson and Kerr (2005), “psychopathic incarcerated adult offenders with the highest intelligence quotients, and particularly verbal quotients, showed the most severe offense history, including violence.” Johansson and Kerr (2005) concluded the existence of high verbal ability as an aggravating factor for future violence. The difference found by Johansson and Kerr (2005) was that higher verbal intelligence served as a protective factor, enabling offenders to postpone their onslaught of criminal behavior. As later analysts, Muñoz et al. (2008) envisioned results that would indicate higher intelligence (measured by verbal ability) was found in

conjunction with high psychopathic traits, these items proved contributing factors for effectuating greater violent delinquency.

Through demonstrations of current literature (Muñoz et al., 2008), the degree to which higher intelligence serves as an aggravating factor for greater psychopathy becomes realized. Muñoz et al. (2008) describe prior work (Salekin et al., 2004) “the deceptive and manipulative behaviors associated with narcissism may rely heavily on intact verbal abilities... being able to wield one’s words can be helpful if one wants to lie and influence others to do what one wants” (p. 415). Muñoz and colleagues (2008) honor earlier research (Vitacco et al., 2005) finding narcissism, the interpersonal ingredient of psychopathy, remained the sole element correlated in a positive manner to intelligence. Having the intelligence to master one’s responsiveness towards the employing of one’s words for charm and manipulation of their victims, illustrates increased harshness of violence (Muñoz et al., 2008). Enhanced verbal abilities augment risk of violence for offenders possessing other risk factors for aggression (Muñoz et al., 2008). Further results of Muñoz et al. (2008) concluded the relationship between intelligence and psychopathy contributed to greater delinquency. Investigators (Muñoz et al., 2008) found results concordant with prior research (Johansson & Kerr, 2005) indicating delinquent youths with greater degrees of verbal ability and greater amounts of psychopathic traits had the highest estimate of violent delinquency. While reporting their investigations still found mixed results about the association between psychopathy and different facets of intelligence, DeLisi et al. (2010) investigated a study by Loney et al. (1998) that found psychopathic children demonstrated higher IQs than non-psychopathic children in terms

of conduct problems. Conclusively, research (Bate et al., 2014; Cleckley, 1976; Hare & Neumann, 2008; Harpur, Hare, & Hakstian, 1989; Muñoz et al., 2008; Puglia, 2005; Salekin et al., 2004; Vitacco et al., 2005) found psychopathic individuals had increased or similar levels of intelligence as non-psychopathic individuals.

Muñoz et al. (2008) pointed to their own study's findings as "consistent with a long history (Cleckley, 1976; Salekin et al., 2004) of clinical descriptions of psychopathic individuals as showing severe antisocial behavior, despite having an absence of the cognitive impairments often present in other offenders." (Muñoz et al. (2008) corroborates with current trends in literature (Blair, Peschardt, Budhani, Mitchell, & Pine, 2006; Frick, 2006; Viding, 2004) revealing psychopathic traits as distinguishing a conclusive category of antisocial delinquents having precise risk factors related to their offending patterns. Further literature (Hackett, 2005) substantiates offenders as having equal amounts of intelligence (e.g., emotional) as non-sexual offenders and control groups.

In the *Journal of Sexual Aggression*, author Simon Hackett (2005) pays homage to two studies detailing the advance nature of offender verbal ability and emotional intelligence. In one study, researcher (Puglia, 2005) investigated the existence of emotional deficits and emotional intelligence in sex offenders by comparing a sample of sex offenders with non-sexual offenders and a control group. Sex offender emotional intelligence was assessed by means of an abilities-based emotional intelligence test (Puglia, 2005). According to the study findings, there was no significant difference in emotional deficits between sex offenders and the control group (Puglia, 2005). These

findings by Puglia (2005) contradict earlier studies positing sex offenders as a uniquely different group of offenders who have deficits in multiple realms of emotional functioning, including empathy, (Fisher, Beech & Browne, 1999; Marshall, Hudson, Jones, & Fernandez, 1995; Rice, Chaplin, Harris & Coutts, 1994; Scully, 1988), emotional perception (Lisak & Ivan, 1995; Malamuth & Brown, 1994; Marshall et al., 1995; Scully, 1988), emotional management (Bridges, Wilson, & Gacono, 1998; Brown & Forth, 1997) and impersonal functioning (Bumby & Hansen, 1997; McKibben, Proulx & Lusignam, 1994; Overholser & Beck, 1986). Puglia's (2005) findings also substantiate sex offenders as having greater advancement in the domains of verbal ability, and emotional and intellectual intelligence. With recent literature (Puglia, 2005), the present study's theory calling for a more advanced curriculum when treating higher psychopathic deviance is substantiated.

In two studies from McCabe (2005), the behavior characteristics of rapists were examined. In the first study, McCabe (2005) analyzed behavioral data from rape cases to determine common themes of 130 offenders charged with rape. In her second study, McCabe (2005) sought to validate the behavioral data she found from the first study by way of analyzing transcripts of court cases adjudicating rape sentences. Consistent with her predictions, rapists carry similarities in behavioral characteristics, especially verbal fluency. According to McCabe (2005), rapists are precise in their word choices. Patterns of rapist verbal communication used in their assaults circled themes that were caring, persuasive, and reassuring. Rapist communication patterns demonstrated proficiency in manipulation and were successful in their interventions with victims. McCabe (2005)

indicated the caring/persuasion/reassurance themes “suggested that the offender was worried about the victim, that the offender was trying to persuade the victim to do something or words... for reassurance of his own power and potency” (pp. 245-246). Findings from McCabe (2005) naturally reflect a certain mastery of language uncommon to offenders who have organic brain impairment or intellectual disabilities. It may therefore be argued that sexual offending, mostly to a certain extent, involves enhanced processing from intellectual domains requiring higher-order cognitive functioning. Findings from an independent study (Muñoz et al., 2008) exposed yet another relationship between higher impulsivity and higher intelligence scores as aggravating factors among delinquency in youth. Muñoz et al. (2008) found higher intelligence as a risk factor for deviant behavior. While the current study discusses that sex offenders likely have higher levels of psychopathy, and therefore presumably higher levels of intelligence, several studies argue to the contrary. In order to provide a balanced view, work that has been less consistent with the above assertions will be discussed.

Earlier research (Hirschi & Hindelang, 1977) established a positive association between low intelligence and delinquency. In fact, studies have found sex offenders (especially offenders against children) have both lower intelligence and psychopathy, and likely “soft” neurological signs (Beggs & Grace, 2008; Olver & Wong, 2006). In a sample of 156 federally incarcerated sex offenders in a 10-year follow-up study, Olver and Wong (2006) found child molesters and incest offenders to have lower psychopathy scores than rapists and mixed offenders. In their sample (Olver & Wong, 2006), child molesters were defined as having victims less than 14 years of age and mixed offenders

were defined as having at least one adult and one child victim. To explain the difference in higher PCL-R scores for rapists and mixed offenders versus child molesters and incest offenders, researchers attribute rapists and mixed offenders with having higher Factor 2 scores consisting of more antisocial and criminalized lifestyle (Olver & Wong, 2006). Hirschi (1977) discovered low intelligence was more prognostic for criminality than ancestry or social class.

Beggs and Grace (2008) highlighted hypotheses by Guay et al., (2005) as recommended by Hirschi and Hindelang (1977) that the relationship between intelligence and delinquency was secondary to the intervening influence intelligence had on acquiring education, employment, and opportunity. In their study, Heilbrun (1979) found that incarcerated offenders with high psychopathy scores in conjunction with lower intelligence scores predicted a history of more violent offenses versus those offenders with high psychopathy and high intelligence. According to Beggs and Grace (2008), new research (Walsh, Swogger, & Kosson, 2004) duplicated the Heilbrun (1979) study using the PCL-R instrument. Results by Walsh, Swogger, and Kosson (2004) found a similar but weak interaction between psychopathy and low intelligence predicting violent offenses in the participants' offense history (Beggs & Grace, 2008). Other research (Farrington, 2000, 2006) indicates a significant association between high psychopathy traits and low verbal and non-verbal intelligence. Further research (Beggs & Grace, 2008; DeLisi, Vaughn, Beaver, & Wright, 2010; Farrington, 2000, 2006; Hare & Neumann, 2008; Hirschi, 1977) found psychopathy also to be related inversely to intelligence. "The popular idea that psychopathic offenders have higher levels of intelligence is somewhat

inconsistent with scholarly research that has produced mixed results on their interrelationship” (DeLisi et al., 2010, p. 169). To back their claim, DeLisi et al. (2010) highlighted Harpur et al. (2002) who contended that psychopaths shared atypical deficits involved in attention, impulse regulation, and emotion and language processing. Other researchers (Beggs & Grace, 2008) found no difference between recidivists who had high psychopathy and high intelligence scores as compared to recidivists with low psychopathy scores. On the contrary, research (Beggs & Grace, 2008) suggested that low IQ and high psychopathy interacted to lead to greater recidivism. Beggs and Grace (2008) concluded, “that the interaction with intelligence is specific to psychopathy as a personality construct and does not apply to actuarial risk in general” (p. 693).

This research by Beggs and Grace (2008) affects the study’s expectations in three ways. First, if intelligence is related to psychopathy as a personality construct but not to general risk of recidivism, then it can be assumed that higher intelligence affects one’s severity of psychopathy but not one’s risk of reoffending (Beggs & Grace, 2008). This assumption is consistent with the current study’s claims. As a reminder, the present study is not arguing that higher psychopathy and intelligence lead to recidivism. The present study is championing that a positive association exists between psychopathy and intelligence, irrespective of recidivism rates. The present study is not suggesting that an offender with high psychopathy and high intelligence directly predicts greater or lesser degrees of recidivism. In fact, research by Beggs and Grace (2008) found that offenders with high intelligence scores all demonstrated low rates of reoffending. However, this finding does not dispel the argument that higher intelligence is associated with

aggravating degrees of psychopathy, because while the psychopathy instrument (PCL-R) predicts violent and non-violent recidivism (Grann, Langstrom, Tengstrom, & Kullgren, 1999; Harris, Rice, & Cormier, 1991; Hemphill, Hare, & Wong, 1998; Strand, Belfrage, Fransson, & Levander, 1999), psychopathy is not defined according to that offender's *rate* or history of recidivism. In fact, out of twenty traits and four dimensions assessed by the PCL-R, the dimension and single trait most closely related to recidivism is "Antisocial: revocation of conditional release" (Hare & Neumann, 2008).

Second, the research by Beggs and Grace (2008) found that "...intelligence might be considered as a protective factor for recidivism—that is, above-average intelligence can mitigate the risk [of recidivism] associated with relatively high PCL-R scores" (p. 693). However, research by Johansson and Kerr (2005) disputed this finding by arguing that higher verbal intelligence served as a protective factor in terms of equipping offenders with being able to postpone their onslaught of criminal behavior. Regardless of serving as a protective factor for delaying criminality or serving to mitigate the risk of recidivism, the assumption that intelligence serves as a protective factor is also consistent with the current study's claims. The current study argues in favor of a more advanced curriculum in order to meet the intellectual needs of sexually deviant offenders who have a seventh grade education or greater. If intelligence in offenders can serve to reduce the risk of re-offense, then a slightly more advanced treatment curriculum that challenges the offender, by way of critical thinking, will draw that offender's interest and enable him to learn the skills not to reoffend (Beggs & Grace, 2008).

Third, research by Freedman (2001) details the high false-positive rates of the

PCL-R assessment of psychopathy. Freedman (2001) proclaims the PCL-R lacks reliability and validity as a tool for predicting future dangerousness and subsequently denounces the use of the PCL-R in forensic or clinical settings. Thus, all research condemning or condoning an association between intelligence and psychopathy should be reviewed with caution. In concert with findings of an inverse relationship between psychopathy and intelligence, Hare & Neumann (2008) cited Hare (2003)

... a substantial literature indicates that the association between the PCL-R total score and standard measures of intelligence is weak at best... there is no obvious theoretical reason why [psychopathy]... should be related to intelligence; some psychopaths are bright, others less so. (p. 227)

Moreover, research by Spironelli and colleagues (2014) posited that lower intelligence scores should be associated with higher levels of psychopathy since psychopaths were uncaring to repeated punishment and lacked the ability to anticipate the consequences of their behavior. Likewise, Guay et al. (2005) hypothesized that offenders with lower intelligence were more likely to commit crime because their intellectual deficits did not enable them to consider ramifications for their behavior. In their study, Beggs and Grace (2008) suggested only a weak relationship between intelligence and (initial) offending existed. However, their results indicated that intelligence scores moderated psychopathy in terms of reoffending (Beggs & Grace, 2008).

The group with relatively high [psychopathy] and relatively low IQ scores was more than 4 times as likely to have been reconvicted of a sexual offense and more than twice as likely to have been reconvicted of a violent or general offense

compared to any other group. (Beggs & Grace, 2008, p. 692)

According to Holland, Beckett, and Levi (1981), low intelligence was related to violent crime in all their investigations; specifically, low intelligence was revealed as a supplement to offender psychopathy scores versus an interactive effect.

In addition, contrary to higher intelligence serving as a marker for greater psychopathy, more research by Hayes (2009) suggested otherwise. Rather, impulsivity and intellectual disability contributed differentially to later sexual offending (Hayes, 2009). Researchers found that sexual offending is the type of criminal offense most commonly associated with offenders having some degree of intellectual disability (Barron et al., 2002). “The incidence of sex offending in offenders with ID may be four to six times higher than in the general population (Day 1994; Hawk et al. 1993; Robertson 1981)” (Barron et al., 2002, p. 456). Barron et al. (2002) also found a higher rate of mental illness in the criminal population as compared to the general population. Barron et al. (2002) found testimony by Lund (1985) that “...mental illness may be a significant contributing factor to the offending behavior” (p. 457). Hayes (2009) corroborated findings (Barron et al., 2002; Day 1994; Hawk et al. 1993; Robertson 1981) through more literature (Parry & Lindsay, 2003), that low intelligence was a distinguishing factor for risk of future sexual deviancy. Hayes (2009) praises the work of Ornduff et al. (2001) citing, “the link between being a victim and being an abuser is not a straightforward situation involving social learning and imitation, with evidence suggesting personality characteristics can mediate the link between the two” (p. 4). Hayes (2009) details the personality of the offender as a factor for being an abuser. “Extreme

self-doubt, social ineptitude, and a basic lack of understanding of causality in the social realm” (Hayes, 2009, p. 4) contributes to future offending behavior. Still other authors (Muñoz et al., 2008) predicted the narcissistic aspect of psychopathy, and not the impulsive element, would increase severity of violence. Hayes (2009) broadens the research (Balogh et al., 2001; Hayes, 2002; Lindsay et al., 2001; McElroy et al., 1999; Thompson 1997) to highlight the influence of prior sexual and physical abuse, and not personality traits *per se*, as factors for later life offending. Multiple researchers (Balogh et al., 2001; Hayes, 2002; Lindsay et al., 2001; McElroy et al., 1999; Thompson 1997) found that a history of sexual and physical abuse was correlated positively to both intellectually disabled and non-disabled offenders. Therefore, early environmental exposure to abuse was a factor in later offending, irrespective of the intelligence of the offender. Disregarding individual personality traits, research (Balogh et al. 2001; Hayes 2002, 2009; Lindsay et al. 2001; McElroy et al. 1999; Thompson 1997) indicates opposition even concerning the circumstances in which impulsivity acts as a factor for violence.

Given the preceding claims, the longstanding debate about psychopathy and intelligence warrants further investigation and discussion. It is important to note that this dissertation acknowledges the research by DeLisi et al. (2010) and others that indicate psychopaths possess deficits, one of which is a deficit in impulse regulation and emotion processing. However, the dissertation’s claim is *not* that psychopathic sex offenders possess *superior* intelligence. Rather, this work’s claim is that the intelligence of a sex offender is average or above levels of a seventh grade education - a requisite mandate

that sex offender curricula be written in a “seventh grade reading level.” First, the scope of the psychopathy construct (the Psychopathy Checklist Revised; Hare 1991, 2003) is limited (Patrick, 2006). “The effort to operationalize Cleckley’s criteria as a unitary construct in the PCL resulted in an item set that was generally more reflective of deviance and maladjustment” (Patrick, 2006, p. 613). Second, PCL-R items composing a “positive adjustment” set were excluded from the PCL-R (Patrick, 2006). This exclusion would not be problematic, except for the fact that “good intelligence” would be included in the “positive adjustment” set (Patrick, 2006). Ultimately, the four items not qualifying in the PCL-R were good “intelligence, absence of delusions and other signs of irrational thinking, suicide rarely carried out, and absence of ‘nervousness’ or psychoneurotic manifestations” (Patrick, 2006, p. 613). Third, these preceding statements beg to question if other researchers (DeLisi et al., 2010; Hare & Neumann, 2008; Harpur et al., 2002) are arguing for the non-existence of a positive association between intelligence and psychopathy, when the lack of evidence for that association may exist simply because intelligence was an excluded item set in the PCL-R assessment. Alternatively, it may be that researchers (DeLisi et al., 2010; Hare & Neumann, 2008; Harpur et al., 2002) repudiate the relationship between psychopathy and intelligence since there is no intelligence item on the PCL-R. Researchers may also overlook other research (Vitacco et al., 2005), which finds a positive relationship between verbal intelligence and the interpersonal domain of psychopathy. According to a study by Vitacco, Neumann, and Jackson (2005),

...results revealed that the interpersonal dimension positively predicted

IQ, whereas the affective and behavioral factors negatively predicted IQ. The negative relationship between behavioral impulsivity and verbal IQ is consistent with previous research (Harris, Rice, & Lalumeire, 2001; Loeber et al., 2001), indicating that cognitive deficits are related to disturbances in behavioral regulation and conduct. The fact that the interpersonal factor positively predicted IQ is consistent with Cleckley's (1941) assertion that some aspects of psychopathy may be associated with good intelligence, which Salekin, Neumann, Leistico, and Zalot (2004) have recently demonstrated. Taken together, the finding that verbal intellectual functioning is differentially related to the dimensions of psychopathy helps to explain previous inconsistent findings regarding IQ and psychopathy. (p. 474)

With the above statements from recent research, it is concluded that the greater the degree of psychopathy in offenders, the more average or above average the level of intellectual intelligence that may exist in the offender. Further, extant data (Herba et al., 2007) reveals psychopathy is related to atypical cognitive and autonomic functioning that is correlated to affective processing. Thus, it may be that sex offender intelligence is generally low as it relates to emotional intelligence, but not verbal intelligence. As one example, research (Ali, Amorim, and Chamorro-Premuzic, 2009) finds psychopathy to be associated with lower trait emotional intelligence. Researchers define trait emotional intelligence as one's capacity to regulate stress levels and exhibit good interpersonal skills (Ali, Amorim, & Chamorro-Premuzic, 2009). They admonish that the ability to

empathize is a key element of emotional intelligence and lack of empathy is a decisive standard of psychopathy (Ali et al., 2009; Hare, 1991). Therefore, it is believed that psychopaths have low emotional intelligence given their deficits in emotional reciprocity (Ali et al., 2009). Whereas recent research reifies the argument for psychopaths having increased levels of verbal intelligence, some research (Bate et al., 2014; Hare & Neumann, 2008; Morgan, 2010; Salekin et al., 2004; Vitacco et al., 2005) found strong positive associations between the interpersonal construct of psychopathy and increased levels of verbal intelligence. Salekin et al. (2004) identified positive correlations between psychopathy and measures of the K-BIT's verbal intelligence subscale. Johansson and Kerr (2005) concluded the existence of high verbal ability was an aggravating factor for future violence. Finally, results by Muñoz et al. (2008) found that when higher intelligence (measured by verbal ability) was found in conjunction with high psychopathic traits, these items proved as contributing factors for effectuating greater violent delinquency.

If intelligence serves as a protective factor for reducing recidivism (Beggs & Grace, 2008), implementing a stronger sex offender curriculum versus the outdated and remedial curriculum is essential. A curriculum that does not out-date new research of evidence-based practices, and a curriculum that is more compatible with the etiology of sexual offending is necessary. Furthermore, it could be assumed that a curriculum more advanced than a seventh-grade level education could promote greater cognitive processing, which would in turn heighten the chances of that offender not recidivating. Ultimately, if risk management programs were to cater to a more deviant and

psychopathic offender, by way of more comprehensive curricula designed for individuals of average or greater than seventh grade level education, risk of recidivism may be reduced more than the current modus operandi elicits.

Psychoneuroimmunology treatment proves to be a new direction for the treatment of sexual offenders. Specifically, the PE of PNI treatment will enhance treatment efficacy and reduce offender recidivism in court-mandated treatment. Psychoneuroimmunology will be the utility of PE from CBT to support CBT's effectiveness for reducing sexual offender recidivism. The key component of PE will be PNI. However, before the PE of PNI can be shown as the choice of treatment for court-mandated clients, a review of the literature on the treatment efficacy of PNI should be honored.

The next section addresses research emphasizing the benefits of learning PNI. Psychoneuroimmunology addresses the physiological, psychological, and neurobiological effects of positive and negative affect (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009). Understanding PNI should serve to aid clinicians and clients on the best ways with which to change a client's affect in court-mandated therapy. Specifically implementing PNI as the new modality of PE for offenders in court-mandated treatment will have the greatest impact at reducing offender recidivism. Understanding how PNI works, clients will be able to manipulate their physiology using psychological interventions. Since PNI addresses the responsiveness of immune function to behavioral interventions and identifies for clients how to modulate one's nervous and immune systems (Kiecolt-Glaser et al., 2002), PNI treatment may serve as a more

effective intervention. The implementation of PNI as a means of PE is one example of a new therapeutic modality that reduces the risk of recidivism thereby enhancing treatment efficacy.

Support For The Psychoeducation of Psychoneuroimmunology as a New Treatment Intervention For Sexual Offenders

“Psychoneuroimmunology (PNI) is the study of emotions, their associated neural correlates... how they impact immunity and health and their correlations... between reduced stress and increased longevity” (Maier, 2012, pp. 6-43).

Psychoneuroimmunology examines the interrelationships between mental states and the nervous, endocrine, and immune systems. In their text, Koenig and Cohen (2002) find evidence to support how mental states affect physical health. In particular, their findings evidence how mental states and religious beliefs affect neuroendocrine and immune mechanism, and how these mechanisms affect susceptibility to cancer and recovery post-surgery. According to Koenig and Cohen (2002), PNI is the study of how our thoughts, actions, and environment alter our mind-body states. Psychoneuroimmunology is a new research framework for explaining health and disease by addressing the relationship between the nervous, immune, and endocrine systems (Leonard & Myint, 2009).

According to Gierloff (2012), other researchers (Ader & Kelley, 2007) have defined PNI as an interdisciplinary merger of the behavioral sciences, neurosciences, endocrinology, and immunology for purposes of explaining how the processes within these disciplines communicate to impact health and disease. Until recently, the literature of immunology failed to identify the bidirectional communication between the immune system and the central nervous system (Kiecolt-Glaser et al., 2002, p. 1). Thus, PNI is the answer

acknowledging immunological interactions of psychiatric disorders (Kiecolt-Glaser et al., 2002). “By challenging the biomedical concept of the immune system as an ‘autonomous’ defense system, PNI represents a shift from a predominantly biomedical paradigm of health and disease towards an interdisciplinary bio-psycho-social approach” (Zachariae, 2009, p. 645). Researchers hail PNI as a “well-established phenomenon... in psychosomatic medicine as a field... [that addresses] the psychological modulation of immune function” (Kiecolt-Glaser et al., 2002, pp. 1-2).

Since its 1939 beginning, the *Journal of Psychosomatic Medicine* has served as a foremost resource for PNI case studies consisting of innovative psychological approaches to health and disease (Kiecolt-Glaser et al., 2002). Still other research by Levin (2010) summarizes empirical evidence highlighting support for the mitigating effects that mental states (e.g., religious beliefs) have on mental illness and psychological distress. The effect found was that religious beliefs served as a protective factor in reducing psychological distress and improving health and well-being (Levin, 2010). By learning an “interdisciplinary biopsychosocial approach to health and disease” (Zachariae, 2009, p. 645), offenders will be taught the skills for modulating their immune system by learning how to control stress levels. The research of PNI demonstrates the importance of psychological interventions to change physiological processes (Kiecolt-Glaser et al., 2002), which may more readily encourage clients to implement these psychological interventions. Levin (2010) contends that “our clients and patients will benefit from more directed attention to dimensions of the self that may be sources of both distress and adjustment but that which, until recently, have been overlooked in our professional

discourse” (p. 11).

Other examples of psychological interventions consist of coping and stress management to improve symptom management and psychosocial care and stress coping strategies found to predict work-life balance (Amazue & Onyishi, 2016; Kilbourn et al., 2013). Psychological interventions, nor their examples including coping skills and/or strategies, are not new to the research literature demonstrating effects on mitigating symptomatology (Adler, Conkin, & Strunk, 2013; Kiecolt-Glaser et al., 2002; Razurel, Kaiser, Sellenet, & Epiney, 2013; Walker et al., 1999). Psychoneuroimmunology is the latest research supporting the efficacy of psychological influences on immune function (Kiecolt-Glaser et al., 2002).

Since much of sexual offending behavior results from the dysregulation of an offender’s mental and emotional stability (Ward & Hudson, 2000; Ward, Hudson, & Keenan, 1998; Ward, Loudon, Hudson, & Marshall, 1995; Yates, 2013), teaching offenders to address their offense pathways offers a strong treatment approach for reducing the risk of recidivism (Bickley & Beech, 2002, 2003; Kingston, Yates, & Firestone, 2012; Proulx, Perreault, & Ouimet, 1999; Simons, McCullar, & Tyler, 2008; Simons, Yates, Kingston, & Tyler, 2009; Ward et al., 1995; Yates & Kingston, 2006). However, having offenders identify and address their pathways to offending is not sufficient to getting that offender to “buy-into” the efficacy of sexual offender treatment. Psychoeducating offenders on PNI research provides clients with empirically supported evidence for learning how emotions affect the immune system (Gierloff, 2012). In Gierloff’s (2012) study, a PNI model was used to investigate the positive affect on the

immunological response to influenza. Recent research surrounding positive affect finds unique interactions for enhancing health prognoses (Gierloff, 2012).

Concurrently, learning coping skills for maintaining emotional stability, offenders will be empowered and better able to problem-solve, as well as enhance their sexual, intimate, and social relationships (Barbaree & Marshall, 1998; Marshall et al., 1999, 2006; Yates, 2002, 2003; Yates et al., 2000, 2010). Subsequently, offenders will have more autonomy and independence to help themselves without the need for pharmacological interventions or direct therapist oversight. When self-control (e.g., emotional stability and behavioral regulation) is instilled in the offender, they are likely to become more accountable for their offense behavior. Since cognitive-behavioral treatment involves challenging thoughts and changing behavior (Barbaree & Marshall, 1998; Marshall et al., 1999, 2006; Yates, 2002, 2003; Yates et al., 2000, 2010), with justification from the PE of PNI, offenders learning the skills for fostering self-control will ultimately enhance their treatment outcomes.

While serving in the role of a California state-certified sex offender treatment provider, valuable lessons are experientially taught about how to treat a court-mandated population effectively. One important lesson learned is the benefit of offenders having a positive valence of affect during treatment (Maier, 2012; Ward & Hudson, 2000; Ward et al., 1995). The theory that emotions can affect health by affecting the neuroendocrine and immune systems is not new to the research literature. Extant research (Gallo, Ghaed, & Bracken, 2004; Gierloff, 2012; Jessop, 1998; Kiecolt-Glaser et al., 2002; Maier, 2012) suggests that emotions affect the immune system and can influence one's ability to fight

infectious diseases. According to PNI research, positive emotional states promote options toward positive results, which subsequently decreases allostatic load (Maier, 2012, p. 14).

“While psychobehavioral issues are inherent to psychoneuroimmunology, much of the research within PNI focuses on stress or coping with stress” (Gierloff, 2012, p. 30).

Zouikr, Bartholomeusz, and Hodgson (2016) state “The challenge now facing the scientific community and clinicians is how to translate the well-established concept of psychoneuroimmunology... in programming future pain responses into therapeutic approaches to treat chronic pain” (p. 11).

To digress briefly, the courts mandate convicts to supervision upon release from jail or prisons as a continuance of serving a criminal sentence (Reuters, 2014). If sexual offenders are released into the community, a mandate of completing their criminal sentence is weekly sex offender treatment (Reuters, 2014). As previously discussed, sex offender treatment consists of interventions designed to reduce the offender’s risk of recidivating. Therefore, under the judicial purposes of court-mandated sex offender treatment, therapy should consist of tools targeting cognitive, behavioral, and affect regulation. Consequently, treatment providers are tasked with helping offenders learn to manage cognitive and emotional stability in order to control behavior

(<http://www.casomb.org/index.cfm>, 2016).

One method of changing the treatment delivery of offenders towards having lasting effects is to target the offender’s affective experience. High priority is placed on the affective component in the therapeutic session, because the absence of manageable and positive affect in the session renders the treatment ineffective. Therefore, the client’s

experience of positive affect may be the most important treatment factor for providers working with a court-mandated offender population. Modulating one's emotion, also known as affect regulation (Sheeber et al., 2009), becomes an essential tool for meeting the needs of the court by teaching offenders the skills necessary for emotional stability (<http://www.casomb.org/index.cfm>, 2016). By learning to foster positive valence of affect, the mandated offender has an improved chance of coping with difficulties (Maier, 2012; Sheeber et al., 2009). Therefore, affect regulation is one intervention that can be implemented to facilitate emotional stability (Maier, 2012; Sheeber et al., 2009) and enhance treatment, and affect regulation can be taught through the PE of PNI.

Psychoneuroimmunology posits that individuals can intervene psychologically to benefit their body's physiology (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009). Given that negative affect dictates poor prognosis for psychobiosocial factors (Gallo et al., 2004; Ward et al., 1995), negative affect may subsequently dictate poor prognosis in offender treatment. Consequently, finding ways for increasing positive affect in clients should be of importance to offender therapists. In research, (Cohen, Doyle, Turner, Alper, & Skoner, 2003; Stone, Cox, Valdimarsdottir, Jandorf, & Neale, 1987) positive emotions were found to promote immune function. Therefore, positive affect in offender treatment may mean healthier lifestyles, mindsets that are more manageable, better attendance records, better group dynamics, and more expedient individual progress. These implications ultimately set forth a prognosis for a better treatment outcome for the offender, which indirectly enhances a better outcome for

protecting the community at large.

Since court-mandated sex offender treatment lasts upwards of 36 months and comes at some or all the cost to the offender, a high level of commitment and treatment compliance is necessary from all community sex offenders. Instilling hope was found by the research of Frank and colleagues (Frank, 1989; Frank & Frank, 1991), to be a predominant element in enhancing treatment efficacy with all patient populations. Infusing hope in the offender's ability to achieve goals indirectly fosters treatment effectiveness in a court-ordered clientele and enables clinicians to work more effectively with sex offenders (Marshall et al., 2005). "...Therapists must convey a sense of hope and optimism for all their clients to encourage the development of self-efficacy ... and a positive success expectancy about change" (Marshall et al., 2005, p. 1108). Having hope and appreciating the efficacy of treatment, the mandated offender will more readily commit to therapy sessions and not regress into noncompliance. Treatment noncompliance causes revocation of probation or parole supervision, potentially sending the offender back to jail or prison. Therefore, the offender's emotional and mental state about treatment is an integral part of treatment compliance and efficacy. To this end, improving one's affect regulation ultimately enhances treatment efficacy for individual clients.

Maier (2012) demonstrated positive valence of affect expands options for increased positive results. Therefore, increasing offenders' positive mental states may enable them to be more open-minded to completing the terms and conditions of their probation or parole, be more open to learning sex offender treatment, and/or more open to

learning coping behaviors for emotional stability. Learning coping skills for stress tolerance and changing mental states will ultimately result in a reduction in the offender's risk of recidivism (Hudson & Ward, 2000). Conversely, if the offender harbors negative valence of affect, it becomes increasingly more difficult to treat offenders since negative affect contributes to the offense pathways of their sexual offending initially (Ward et al., 1995). Conclusively, the valence of emotion enhances or worsens the prognosis for disease and illness, which in turn affects emotion in a bidirectional way (Kiecolt-Glaser et al., 2002). Valence of emotion is a pleasant or unpleasant (valence) experience of emotional response, a valuation of an experience of emotion, a central aspect of emotional responding (Barrett, 2006). "Judgments about whether stimuli or events are helpful or harmful, rewarding or threatening (whether those judgments are fleeting and automatic or more deliberate and effortful) help to influence the valenced property of core affect" (Barrett, 2006, p. 39). Frijda (1986) defined positive valence as an intrinsic attractiveness of a circumstance or item, and negative valence as an aversiveness of a circumstance or item. If the purpose is to keep our communities safe, the new modality of PNI paves the way for reducing offender recidivism.

Given that the research on PNI is typically associated with improved immune function, this study addresses research less consistent with this assertion for a balanced view. Morgan (2010) conducted a meta-analysis of thirty-four studies to investigate the influence of mind-body therapies on immune function. While prior research showed mind-body therapies to have protective effects on health as well as mitigating effects on disease, Morgan (2014) investigated the activity of mind-body therapies on immune

function. Their meta-analysis revealed sufficient evidence to support the reduction of the inflammatory marker, C-reactive protein (CRP), following the psychosocial interventions of mind-body therapies. Conversely, only limited evidence showed mind-body therapies as enhancing anti-viral immunity at rest. While some mind-body therapies have enhanced immune responses to vaccines, among 21 of 34 studies, the results of mind-body therapies to affect natural killer (NK) cell quotients were trifling. Ultimately, Morgan (2014) concluded mind-body therapies decreased inflammation, affected anti-viral immune response to vaccinations, and could enhance virus immunity at rest. Their conclusion was based on limited support of available anti-viral outcome data. Thus, while results of immune modulation exist, Morgan (2014) contends the evidence is lacking.

The Psychoeducation of Psychoneuroimmunology: The Development of the Treatment Intervention

Psychoneuroimmunology as a psychoeducational therapeutic modality addresses the impact of affect regulation on the immune system (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009). As substantiated by the research previously addressed, mental health professionals working with offenders are implored to consider writing offender treatment plans with the added intervention of psychoeducating clients about PNI. Since PNI addresses the impact that psychological states can have on regulating immune system (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009), psychoeducating offenders about PNI will teach them how to increase their chances for health, survival, and better treatment outcomes.

Psychoneuroimmunology addresses the effects of psychosocial interventions on the immune system (Walker, 1998). Psychoneuroimmunology treatment includes psychological interventions such as relaxation training and guided imagery and mind-body therapy such as stress management training, cognitive-behavioral therapy techniques, and mindfulness techniques (Elsenbruch et al., 2005; Walker, 1998). Because of PNI agents, disease advancement is altered by psychological interventions (Ader, Felten, & Cohen, 1991; Lewis et al., 1994; Walker & Eremin, 1995).

If offender PE contained the latest concept of PNI, it is posited that the offender's newfound knowledge could enable them to manipulate their immune and endocrine systems behaviorally, which would enhance their chances of survival (Zachariae, 2009). Psychoneuroimmunology may mean, "Behavioral manipulation [could] affect immunity so as to influence health and survival" (Zachariae, 2009, p. 650). To this end, PNI serves to revise old notions of the medical model and reveals research about the interplay between the nervous, immune, and endocrine systems (Ader & Kelley, 2007; Gierloff, 2012; Kiecolt-Glaser et al., 2002; Koenig & Cohen, 2002; Leonard & Myint, 2009; Levin, 2010; Maier, 2012; Zachariae, 2009). Psychoneuroimmunology may also help to explain why offenders make the choices that they make, since PNI explains the impact of affect, and negative affect was determined to contribute to a sex offender's pathway to offending (Ward et al., 1995). The next nine sections address the pertinent PNI processes, which are taught in the PNI treatment intervention of sexual offender's treatment.

Affect

Kiecolt-Glaser et al. (2002) demonstrated the significance of how positive and

negative emotions affected the health and well-being of individuals. In findings (Kiecolt-Glaser et al., 2002), the production of proinflammatory cytokines affecting the psychological and physiological health of individuals were found to be fueled by negative affect. In other words, negative affect was found to be one ingredient for igniting inflammation. In an effort to understand how positive affect could account for greater health and well-being, the correlation between negative affect and symptomology was examined (Kiecolt-Glaser et al., 2002). If negative affect was strongly correlated with worsening the symptoms of disease and infection, then the reverse should be true. Therefore, adopting a positive outlook should enhance disease prognosis. To understand the relationship between emotion and cytokine production further, this investigation turns its attention to the immune and endocrine systems.

Emotions influence the health and well-being of individuals both directly and indirectly (Kiecolt-Glaser et al., 2002). In the case of counseling sex offenders, positive affect from clients *indirectly* enhance the efficacy of treatment by fostering better compliance with court-mandated treatment because of more optimistic hope expectancy for a healthy change. In the case of CNS, immune, and endocrine systems, negative emotion *directly* affects each system (Kiecolt-Glaser et al., 2002). Research favors the *direct* affect that negative emotion, via proinflammatory cytokines, has on these systems (Kiecolt-Glaser et al., 2002). In moderation, these cytokines play an important role in fighting infection (Kiecolt-Glaser et al., 2002). However, when the cytokines are dysregulated and working in excess, persistent inflammation results. “Chronic inflammation is the prolonged presence of chemicals that repeatedly evoke immune

responses” (Motivala, 2011, p. 144). Such inflammation further causes deterioration of both the body’s cells and the “filter” that the body uses to detect a succeeding threat (Kiecolt-Glaser et al., 2002). A perfect example of such deterioration is the lung damage associated with tuberculosis (Nivison, Guillozet-Bongaarts, & Montine, 2010). Here, an extended immune response causes damage to the lung by way of the “macrophages that produce free radical or oxidative stress” (Nivison et al., 2010, p. 23). Thus, chronic inflammation is accountable for the parenchymal damage in chronic disease (Nivison et al., 2010). The investigation begins this section by explaining the cytokine dilemma, and then reveals the *direct* effects that emotion has on the body’s physiology.

Cytotoxicity

Protein substances, called cytokines, control the body’s response to threat and illness by signaling either proinflammatory or anti-inflammatory messages between cells (Kiecolt-Glaser et al., 2002). “The proinflammatory cytokines include IL-1, IL-6, and tumor necrosis factor (TNF); they promote inflammation, a beneficial reaction in early immune responses to infection and injury” (Kiecolt-Glaser et al., 2002, p. 88). Cytokines are messengers of information *between* the immune, endocrine, and nervous systems as well as *within* these systems (Leonard & Myint, 2009). The main task of proinflammatory cytokines is to invite immune cells to the body’s areas of disease or injury where the immune cells become awakened (Kiecolt-Glaser et al., 2002). When they are awakened, the immune cells change the physiology of the individual by inducing inflammation (Kiecolt-Glaser et al., 2002). In other words, proinflammatory cytokines alert the brain to “go to sick mode” (Howard, 2013) by raising the temperature of the

body in an effort to conserve resources by turning off other bodily urges and systems (Howard, 2013). “Cytokines initiate a coordinated centrally mediated set of behavioral adjustments to deal with infection, including sleep changes, social withdrawal, and behavioral inactivity” (Motivala, 2011, p. 147). Metabolism is another physiological change that takes place when the proinflammatory cytokines are at work (Kiecolt-Glaser et al., 2002). “Anti-inflammatory cytokines such as IL-10 and IL-13 dampen the immune response, causing, for instance, decreased cell function and synthesis of other cytokines” (Kiecolt-Glaser et al., 2002, p. 88). It is the cytokines, not the virus, that make an individual have the symptoms of an illness so that the brain does not expend energy when the cytokines are trying to do their job (Howard, 2013). Such behavioral changes “protect the individual from exposure to additional infection, protect the social network from contagion by sequestering the infected individual, and diverting energy resources to host defense” (Motivala, 2011, p. 147).

The significance in relationship between proinflammatory cytokine IL-6 and disease results from the task that the cytokine performs in nurturing CRP (Kiecolt-Glaser et al., 2002). Evidence suggests that increased levels of CRP foreshadow disease in otherwise healthy males (Kiecolt-Glaser et al., 2002). Further evidence demonstrates that people with heavy dosages of IL-6 and CRP have 2.6 times the amount of lethality risk in comparison to people with low dosages of each (Kiecolt-Glaser et al., 2002). In addition to proinflammatory cytokines rallying of immune cells to fight infection, NK cells act on infected cells by intoxicating them with poisonous substances (Segerstrom & Miller, 2004). The purposes of NK cells are to kill the infectious cells before they duplicate

(Segerstrom & Miller, 2004). However, a low lymphocyte count in the midst of an abundance of NK cells jeopardizes immunity, metabolism, and neuroendocrine function (Howard, 2013).

Affect and The Central Nervous System

Furthermore, cytokines drastically affect the CNS by fueling negative moods, producing symptomology, and igniting a myriad of illnesses (Kiecolt-Glaser et al., 2002). Despite fueling negative moods in the bidirectional relationship between emotion and inflammation, inflammation is enhanced *indirectly* by negative affect. Negative affect results because of physical and psychological stressors (Kiecolt-Glaser et al., 2002). Negative affect, caused by stressful life experiences, can nurture stress. Stress causes increased levels of “epinephrine elevated plasma IL-6” (Kiecolt-Glaser et al., 2002). This evidence indicates the indirect relationship explaining how negative emotion causes stress, which causes an increase in the cytokine IL-6 generated by negative affect (Kiecolt-Glaser et al., 2002). In multiple studies (Glaser et al., 1992; Glaser, Sheridan, Malarkey, MacCallum, & Kiecolt-Glaser, 2000; Kiecolt-Glaser et al., 1996; Morag, Morag, Reichenberg, Lerer, & Yirmiya, 1999; Vedhara, Cox, Wilcock, Perks, & Hunt, 1999), individuals with greater stress and anxiety responded to vaccines less rapidly than individuals with less stress and anxiety (Kiecolt-Glaser et al., 2002). Moreover, other studies (Cohen et al., 1998) found that stress reduced the body’s ability to combat cold viruses (Kiecolt-Glaser et al., 2002).

Moreover, negative affect acts on the immune system by “up-regulating” or “down-regulating” the production of proinflammatory cytokines (Kiecolt-Glaser et al.,

2002). Given that proinflammatory cytokines are stimulated by infection or injury, negative emotions may have a hand in delaying the body's ability to fight infection by indirectly over-producing aforementioned cytokines (Kiecolt-Glaser et al., 2002). However, negative emotion not only affects the immune system but the endocrine system as well (Kiecolt-Glaser et al., 2002). "Just as cytokines activate specific receptors on immune, endocrine, and neural cells... neurotransmitters and hormones elicit their biological responses by activating specific receptors on cell membranes (neurotransmitters) or by combining with intercellular receptors (most hormones)" (Leonard & Myint, 2009, p. 166). However, negative affect does not attend the "burglary" alone. Hostility is often an adjunct that accompanies negative affect.

Individuals who harbor negativity and hostility tend to perceive threats as greater than they are, and perceive stimuli as more threatening than the reality of the situation (Howard, 2013). "Stressors perceived as unpredictable and uncontrollable, may continue to be associated with elevated stress hormones even after repeated exposure" (Kiecolt-Glaser et al., 2002, p. 91). Such negative mindsets foster anxious and depressed moods and such moods stimulate the hypothalamic-pituitary-adrenocortical (HPA) axis (Kiecolt-Glaser et al., 2002). Negative emotion prompts the pituitary and adrenal glands to produce stress hormones causing changes in the body's endocrine and immune systems (Kiecolt-Glaser et al., 2002). "Emotion-responsive hormones including the catecholamine (norepinephrine and epinephrine), adrenocorticotrophic hormone, cortisol, growth hormone, and prolactin can impel quantitative and qualitative changes in immune function" (Kiecolt-Glaser et al., 2002, p. 91). Traumatic and stressful life events

dysregulate the HPA axis, sensory nervous system, and immune system (Howard, 2013). Activation of the HPA axis cues the body to prepare for “fight or flight response” when cortisol is increased in the body for a goal of faster “reaction-time” to threatening stimuli. This charges the sympathetic nervous system to prepare the body for attack or fleeing. In such a system, the thalamus and amygdala signal the locus coeruleus via norepinephrine hormone (Howard, 2013). The purpose of the response to threat is physiological encouragement of increased oxygen and glucose to the heart and muscles in order to enhance the organism’s ability to think quickly and move rapidly (Segerstrom & Miller, 2004). Elevations in cortisol are necessary to ignite the immunological changes that become important for short-term stressors (Kiecolt-Glaser et al., 2002). Circling back to the IL-6 proinflammatory cytokine, researchers (Kiecolt-Glaser et al., 2002) know that IL-6 is a potent stimulator for corticotrophin-releasing hormone (CRH), which hormone boosts HPA axis activity, adrenocorticotrophic hormone, and cortisol levels. With these “wheels” in action, such high levels of cortisol can *exacerbate* negative emotions that can worsen the cortisol levels as a result (Kiecolt-Glaser et al., 2002). However, the bidirectional relationship between affect and illness does not end there. Rather, sleep and inflammation are found to have a bidirectional association as well (Motivala, 2011). If this is true, then adequate sleep should become a clinician’s foremost goal each week, and working late hours at night should not be on a clinician’s agenda.

New research by Motivala (2011) finds sleep deprivation and sleep loss affect inflammatory markers. In sleep deprivation studies, “increased levels of inflammatory markers such as CRP... [and] increased expression of IL-6 messenger RNA (mRNA), IL-

6 levels, and CRP levels” (Motivala, 2011, p. 145) were found. Other studies found that sleep-deprived males and females demonstrated a five-fold increase in CRP genesis in the liver (Meier-Ewert, Ridker, & Rifai, 2004). Such lack of sleep increased levels of IL-6 that was also believed to increase CRP (Vgontzas, Zoumakis & Bixler, 2004), indicating sleep as an inflammatory marker (Motivala, 2011). This evidence is backed up by researchers (Suarez & Goforth, 2010) showing inflammatory cytokines as having inhibitory and somnogenic impacts on sleep. Suarez and Goforth (2010) list the effects of cytokine therapy on sleep by informing readers of the increase of patients reporting depression and sleep disturbances. Additional studies (Irwin, Clark, Kennedy, Gillin, & Ziegler, 2003) determined that evening amounts of catecholamine’s were heightened in individuals suffering from insomnia, and increased amounts of norepinephrine and epinephrine levels could also be found (Motivala, 2011). These increases are due to an aroused sympathetic nervous system at night when clients cannot sleep, subsequently manifesting symptoms of active heart rate and high blood pressure (Motivala, 2011). Additional studies (Meier-Ewert et al., 2004; Motivala, 2011; Suarez and Goforth, 2010; Vgontzas et al., 2004) demonstrate the direct relationship between poor sleep, enhanced cytokine inflammatory markers, and activated sympathetic nervous systems at night. If individuals are not asleep at night, as the body’s circadian rhythm requires, then these individuals nurture autonomic activity and increased blood pressure (Motivala, 2011). “Increased blood pressure damages endothelial cells in blood vessels; these cells then recruit leukocytes to the sites of stress, via the release of chemokines and adhesion molecules” (Motivala, 2011, p. 148). Concerning patients who suffer from depression,

evidence shows a strong correlation between insomnia and enhanced intracellular adhesion molecules (Motivala, 2011). Ultimately, these studies act as a foreboding of physiological consequences resulting from the psychological symptoms of insomnia and sleep deprivation. This evidence can be broadened to populations of inmates and individuals suffering from PTSD. Should inmates or war veterans suffer from insomnia due to recurring flashbacks or the reliving of traumatic events, aroused nervous systems accompanied with a dysregulated immune system can be anticipated. Such research allows clinicians to intervene *prior* to psychotherapy, including interventions made at the sleep, nutrition, or exercise levels. Given that a significant amount of convicts report childhood abuse and neglect, one theory for reducing the recidivism rate among inmates might be to intervene at the psychoanalytic level to aid the offender with such repressed trauma. This might be an effective tool for trying to control offending behaviors since it aims to address the “reckless driver” as opposed to merely replacing the “wheels” on the “car” of that driver. Another approach to changing client behaviors is to assist the client with reframing the cognitive appraisals that clients make on court-mandated treatment.

Coping With Stress

Benight (2012) highlights the *transactional theory of stress and coping*. This theory posits that individuals perceive stressful experiences with two differing kinds of cognitive appraisal: primary and secondary (Benight, 2012). In primary appraisal, individuals perceive stressful situations in relation to how the situation affects their own health, safety, and well-being (Benight, 2012). For example, if the client perceives a situation as a threat to them, then they also attach negative consequences for themselves

based on that situation (Benight, 2012). The importance of identifying this form of cognitive appraisal is to demonstrate how reframing situations, as less threatening, can therefore become less taxing on the body's resources and defense mechanisms. Benight (2012) details that individuals with great resilience are already achieving this tool of reframing. "It is possible that... individuals are able to appraise traumatic stressors as a challenge to be overcome... [embodying] a marker for resiliency" (Benight, 2012, p. 3). Therefore, reframing has great implications for clinicians when working with hostile, resistant populations such as convicted felons. For example, group sessions of offenders mandated to treatment might fuel individual clients to engage in psychological warfare against their group facilitator. Such warfare has the capacity to undermine the clinician and hinder progress towards a healthier dynamic of group therapy. However, if the clinician can reframe the situation as positive instead of negative, that clinician will reduce their vulnerability to "attack" and prevent the client's energy from becoming their own energy.

Moreover, reframing negative challenges into positives opportunities in group dynamics can enable the competent clinician to demonstrate the efficacy of how clients can *respond* to communication as opposed to *react*. The former draws upon intellect and psychology, whereas the later draws upon physiology. Benight (2012) might agree that *responding* to situations reifies his definition of "problem-focused coping" whereas *reacting* to situations exemplifies his idea of "emotion-focused coping" or "avoidant coping" (p. 3). As Benight (2012) reveals later in his article, emotion-focused or avoidant-coping has a strong relationship to negative consequences. The way in which

individuals *respond* to threatening situations, lessens the stress of the individual because they can think before *reacting* impulsively. Thinking beforehand enables the individual to recognize many, not all, situations as less threatening. This new understanding prevents the body's nervous system from becoming aroused since the individual finds no threat is evident to initiate the sympathetic nervous system. On the other hand, *reacting* to situations without proper surveying to determine these situations as harmless, fuels an allostatic load.

Allostasis

“Allostasis” defines the body's evolutionary response to stress by identifying enlarged amounts of immune cells with improved cell immunity, whereas an “allostatic load” identifies a dysregulated inflammation response that becomes over-active (Zachariae, 2009). Over-production of the stress hormone cortisol for long-term stressors eats away at the very “hand” that fed it (Kiecolt-Glaser et al., 2002). That is cortisol, among the other hormones signaled by the hippocampus and amygdala, damages the hippocampus' and amygdala's “operating towers” when produced in excess. Persistent chronic stress causes allostatic overload that causes atrophy of neurons in the hippocampus, atrophy to the thymus gland (Howard, 2013), atrophy to the prefrontal cortex... [and] hypertrophy of neurons in the amygdala (McEwen, 2006). When inflammation is chronic and sustained, the result becomes decreased in hippocampal and cortical volumes as well as “apoptosis” (Leonard & Myint, 2009). An “architectural remodeling” (Howard, 2013) of the organs that were once fine-tuned like a working piano, now became dysregulated in preparation for the next fight or flight “orchestra.”

The hippocampus and prefrontal cortex are concerned with memory, selective attention, and executive function, whereas the amygdala is concerned with fear, anxiety, and aggression (McEwen, 2006). Therefore, the ability to learn, remember, and make decisions may be compromised by chronic stress (McEwen, 2006). This evidence sheds light on any difficulty to circumvent in a client's cognitive appraisal to reduce the stress the client garners from everyday situations. However, despite this difficulty, some researchers (Howard 2013; Leonard & Myint, 2009; McEwen 2006) best direct a clinician on where to focus interventions. For instance, the clinician might begin with reducing client stress *before* changing client cognitive appraisal, since these entities are bidirectional. The implications that a reduction of stress could have on cognitive appraisal further the discussion of the bidirectional relationship between affect and illness.

Affect and Illness

A classic example of the relationship between affect and illness lies in the psychiatric illness of depression. "Depression and stress are associated with increased morbidity and mortality" (Zachariae, 2009, p. 649). Evidence shows that depression and anxiety increase the manifestation of proinflammatory cytokines (Kiecolt-Glaser et al., 2002). Depression marries negativity by causing and worsening negative moods, thinking patterns, schemas, and symptoms. Symptoms of depression are worsened by the co-dependent and pathogenic role that proinflammatory cytokines play by producing CRP levels (Kendall-Tackett, 2010). Overwhelming evidence identifies the strong correlations between individuals reporting depressive symptoms and increases in CRP.

Taylor et al. (2006) measured the risk of heart disease and individuals with depression evidenced more CRP amounts than those without depression (Kendall-Tackett, 2010). This evidence was corroborated with another study (Surtees et al., 2008) that demonstrated human subjects with a history of depression and heart disease measured higher CRP levels than individuals with heart disease alone (Kendall-Tackett, 2010). In a study (Andrei et al., 2007), subjects with heart failure and depression showed greater CRP concentration than regular control subjects (Kendall-Tackett, 2010). Kendall-Tackett (2010) examines how coagulability might be the reason that depression worsens heart disease. Kendall-Tackett (2010) found that individuals with depression showed increased CRP numbers, increased white blood count, and greater numbers of coagulability. Heightened coagulability was also found in a study (Matthews et al., 2007) linking depression and cardiovascular risk

Furthermore, findings by Redwine et al. (2007) demonstrate the deleterious effects of depression on the immune system by showing a converse correlation between the greater the number of depressive symptoms and the greater the occurrence of cardiac rehospitalization and mortality (Kendall-Tackett, 2010). Kendall-Tackett (2010) concludes that while medication can attempt to treat depression, it does not reverse the harmful effects of inflammation. These conclusions emphasize the need for psychological and physiological vulnerabilities to be addressed in therapy with a bio-psycho-social framework. Such treatment, of depression for example, should consist of interventions on the biological, physiological, and psychological levels. Research (Kendall-Tackett, 2010) exemplifies that a medical approach alone is insufficient. An interdisciplinary team

should address the risk factors together in order to successfully affect the health and well-being of individuals suffering from depression.

The implications of multiple researchers (Kendall-Tackett, 2010; Kiecolt-Glaser et al. 2002; Matthews et al., 2007; Redwine et al., 2007; Zachariae, 2009) also remind clinicians that maintaining a healthy physiology is important for sustaining a healthy psychology. In other words, clinicians should adhere to healthy eating and healthy exercise habits just as they attend to advancing their knowledge psychologically. Such evidence begs the question *why* continuing education units are mandated to sustain a psychologist's professional license, but the same mandate is not required of psychologists for their physical well-being. Finally, multiple studies (Andrei et al., 2007; Kendall-Tackett, 2010; Kiecolt-Glaser et al., 2002; Matthews et al., 2007; Redwine et al., 2007; Taylor et al., 2006; Zachariae, 2009) reiterate that addressing a client's physical health can enhance the efficacy of a psychological treatment. Howard (2013) advises future clinicians of the equal benefits that exercise achieves as compared to medication. As one example, exercise was reported to have the same total effects on alleviating depression as that of the antidepressant Zoloft (Howard, 2013). Important considerations should be in mind when clinicians devise client treatment plans based around both a client's psychological and physiological needs.

Psychosocial Stressors

Given new evidence from studies by Christian (2012) investigating a client's prenatal environment and birth, become an important tool for clinicians to understand present-day presentations. Christian (2012) highlights the significance that stress plays

upon pregnancy. In healthy pregnancy, Christian (2012) writes, “successful pregnancies... protect the fetus from excessive maternal inflammatory responses to infectious agents” (p. 352). However, stressful pregnancies enable inflammation and present a graver outlook for pregnancies. Her contention is that inflammation spurs preterm delivery by fostering gestational hypertension and preeclampsia (Christian, 2012). “Features of preeclampsia, including impaired lipid metabolism and endothelial dysfunction, can be induced by proinflammatory cytokines” (Christian, 2012, p. 5). This evidence demonstrates that a stressful mother can physiologically affect the pre-natal environment of her fetus, thereby affecting the development of the fetus’s tolerance to stress (Christian, 2012). The result might be the fetus grown to adulthood, having a weakened discernment of perceived threat and an over-active sensitivity to stress; all because of a stressful mother during the prenatal environment. Christian (2012) cautions all expectant mothers to heed the pathways linking stress to immune function during pregnancy, which affects birth. She reports that psychosocial stressors affect the psychological distress of pregnant mothers, and based on the health behaviors in which these mothers cope with the psychological stress, they affect the immune parameters of the birth (Christian, 2012). For example, if a mother copes with stress by smoking or drinking, she directly affects the fetus internally and toxically. If the mother lessens her stress by drawing upon prosocial resources such as family and spirituality, then the prenatal environment improves (Christian, 2012).

Psychosocial stressors produce stress as significantly as physiological stressors. When stress disturbs the body’s homeostasis, this same stress can be found as an internal

or external environmental transformation (Leonard & Myint, 2009). Given our inmate's history of pre-offending behavior, it becomes quite clear that the body's automatic need for the goal of homeostasis might be a significant catalyst in enabling an offender's criminality. By no means does the body's automatic drive for homeostasis and equilibrium diminish, belittle, or excuse even the tiniest severity of the actual crime being committed. Adult offenders are not robotic mammals without a choice or conscience even when empathy might be lacking. Yet, to identify a specific environmental stressor that can be found to foster the individual to an offensive behavior, such knowledge is sometimes a great deterrent at preventing the convict from re-offending. For example, one offender stated that his criminal behavior started in light of losing his job of 42 years and subsequently losing his family's title as "patriarchal sole provider." Given this stressor and the negative emotion, shame, and guilt attached to his newfound unemployment, the client discussed his attempts at forgetting his "devastation" by engaging in promiscuous behavior. As the court psychologist's clinical opinion posted, the offender's immoral promiscuity was allegedly an attempt for the client to reduce the anxiety and depression surrounding his circumstances by *acting out* that anxiety and depression in inexcusable ways. Demonstrating the stress response cycle of offending behaviors, first the *stressor* causes negative affect, which brews while unbalancing the body's homeostasis. Then *sexual fantasy* becomes the client's preoccupation, leading to *ritualistic* grooming behaviors, encouraging the offender to *act-out* his behavior. The result becomes momentary *relief*, subsequently followed by *self-blame and depression*, which repeats the cycle of stress accumulation.

Important for this discussion is not the offending behavior so much as the stress that might have contributed to encouraging a client with predisposed criminogenic needs to “throw caution to the wind.” Given his possible predisposition to criminality, the client needed a psychosocial stressor severe enough to prompt such behavior. Given that the frontal lobes, hippocampus (amygdala and hypothalamus) are impaired during times of stress (Howard, 2013), these facts further indicate a loss of conscience, caution, and healthier thinking patterns preceding a subject’s behaviors before the actual crime is committed. Benight (2012) writes, “neural emotional regulating mechanisms related to threat detection with the ventrolateral prefrontal cortex influencing amygdala response... provide important links with current cognitive appraisal components from stress and coping” (p. 4). Again, not to excuse a crime in any way, but emphasis should be made on identifying the underlying physiological and psychological causes in concert with overt psychosocial environmental causes.

Negative Affect

To highlight the negative effects of aversiveness, or negative valence, we turn our attention to an article by Gouin et al. (2008), which reflects on how anger causes a delay in wound healing. Gouin et al. (2008) found that the negative effects of anger expression were correlated with increase of cortisol secretion, decrease of immune function, and delay in surgical recovery. Gouin et al. (2008) posited that externalized and internalized anger in conjunction with a lack of anger control would be linked with a delay in wound healing. Cortisol secretion is a significant determinant for the healing process (Gouin et al., 2008). Results from Gouin et al. (2008) demonstrated that participants with reduced

ability to control anger showed an increase of cortisol secretion, enlarged cortisol reactivity, and subsequent lengthier time in the healing process. The clinical implications from Gouin et al. (2008) caution readers that the capacity of affect regulation can heighten or reduce the time it takes to heal. How the process works is even more intriguing than the results.

Gouin et al. (2008) found evidence warning that the way in which anger was expressed- internalized or externalized- affected the physiological and psychological ramifications of this negative valence. In a separate study, Gouin et al. (2008) found that individuals with higher amounts of anger expression were connected with lengthier post-operative recovery and heightened post-surgical difficulties. Moreover, Gouin et al. (2008) describes how anger expression is associated with immune dysregulation. Gouin et al. (2008) details a study signifying that caretakers of individuals suffering from dementia had a reduced ability for cell division if they showed increased anger manifestations with low ability for anger management; whereas caretakers demonstrating a high capacity to control their negative emotions and a reduced expression of externalized anger, demonstrated an enhanced capacity for mitotic cell division. Gouin et al. (2008) also point to other findings that indicate that males with prostate cancer who have greater control over their anger show a reduction in NK cell cytotoxicity. Gouin et al. (2008), honors other studies sharing how anger expression facilitates increases in the stress hormone cortisol, in as early as 20 minutes. Gouin et al. (2008) found in another study, that aggressive husbands showed increased glucocorticoid secretion as compared to non-aggressive husbands or husbands who did not act upon angry emotions.

Furthermore, Gouin et al. (2008) found that teachers who were encountering difficulty in the workplace revealed increased cortisol levels in the morning and that they lacked the ability for anger suppression as compared to teachers who were detailed as having greater control of their anger expression (Steptoe et al., 2000). Males who were found to have a faster rate of wound healing were also found to have lower levels of morning cortisol from a study reviewed by Gouin et al. (2008). A review by Gouin et al. (2008) found that increased salivary cortisol was linked to a decrease production of cytokines responsible for the healing at the site of infection on a human subject. Finally, Gouin et al. (2008) found a glucocorticoid receptor antagonist weakened the reduction of stress in the healing process emphasizing the ability for cortisol to have maladaptive effects on healing (Christian et al., 2006; Detillion et al., 2004).

Educating clients from the evidence gathered because of PNI allows practitioners to better empower clients to have positively enhanced surgeries by implementing tools they learn through PE (Gouin et al., 2008). For example, Gouin et al. (2008) found evidence from Kiecolt-Glaser et al. (1998) detailing how psychological preparation was attributed to enhanced positive post-surgical recovery. According to Gouin et al. (2008), relaxation as a means of psychological preparation was found to foster better recovery from surgery as found in evidence by Montgomery et al. (2002). In other research, Gouin et al. (2008) found that if cytokines were responsible for battling infection at the sites of wounds, then psychological distress caused a dysregulated cytokine production.

Affect and Recidivism

Affect being one of the key ingredients for offending thus becomes a primary

target for reducing the risk of recidivism. By changing ones affect from negative to positive, a reduction in recidivism should be obtained. Wood et al. (2000) draw upon earlier researchers to elaborate on the importance that affect plays in the behavior of crimes.

Hildebran and Pithers (1992) stated that the relapse chain for offenders typically begins with alteration in affective state-depression or anxiety for child molesters, exacerbation of chronic anger for rapists. Offenders attempt to cope with negative affect through abusive sexual fantasies of a world in which the offender has complete control over others. Masturbation to such fantasies provides a temporary reduction in negative affect, reinforcing the fantasy and, for some, strengthening the precipitating negative affect. Cognitive distortions provide justifications for the fantasized actions, increase the excitement associated with the fantasy, and decrease any potential guilt. With the fantasy more powerful, and potential cognitive and affective inhibitions reduced, offenders begin to think about (i.e., plan) the conditions under which they could or should enact their fantasies. With repetition, this sequence of affect, fantasies, cognitive distortions, and behaviors evolves into a well-justified plan to commit an assault. As the sequence progresses, offenders are at increasing risk of reoffending. (Wood et al., 2000, p. 34-35)

Moreover, Wood et al. (2000) reviewed literature that detailed how the etiology of offense behavior lies in a pattern of thought, affect, and behavioral components. Marshall (1996) describes that the impulse to commit a crime is necessary, but deficient in

predicting criminal behavior. Instead, affect and behavior must also play a part (Wood et al., 2000). In a study by Hall (1995), a meta-analysis of offender treatments for sex offenders revealed CBT as one of two interventions reducing offender recidivism by nearly 30% (Wood et al., 2000). Wood et al. (2000) honors other findings (Hall, 1995) that verify that participants in outpatient settings showed larger effect sizes with higher base-rates. Hall (1995) concludes that CBT as the supreme treatment for offenders yielded a greater efficacy than behavioral and hormonal interventions (Wood et al., 2000). “Offenders can use the concepts and procedures generated by cognitive-behavioral models to reduce their risk of sexual reoffending” (Wood et al., 2000, p. 36).

Summary and Conclusions

Psychoneuroimmunology is the study of how psychological factors modulate immune function, health, and disease, by addressing the relationship between the nervous, immune, and endocrine systems (Ader & Kelley, 2007; Gierloff, 2012; Koenig & Cohen, 2002; Leonard & Myint, 2009). Since PNI is, “the study of emotions [and] how they impact immunity and health... between reduced stress and increased longevity” (Maier, 2012, pp. 6-43); gaining the knowledge of these processes would equip clients with the capacity to modulate emotions and immune functioning. Learning how to intervene with better coping strategies for reducing stress and alleviating symptomology, a client becomes empowered and accountable for their offending decisions. Not having this knowledge or empowerment leaves the client to wallow in defeat, but highly common inexcusable victimization. Therefore, for every clinician working with inmates, parolees, or probationers, empowering the client through PE should be on every treatment

plan and agreement. If such PE contains the concept of PNI, it is the hope that the client's newfound knowledge enables him to control behavior by intervening early on in the stress cycle. Using the words of Zachariae (2009), PNI may mean that "behavioral manipulation [could] affect immunity so as to influence health and survival" (p. 650). To this end, PNI serves to revise old notions of the medical model as supreme, and posits new scientific reasons and evidence based practices for why people do what they do. Ultimately, adopting a PNI approach to the PE of court-mandated offenders should enhance clients' treatment efficacy. The enhancement of treatment efficacy would mean a decrease in the risk of recidivism in offender rating scales. It is this result, which the present study hopes to prove.

Chapter 3: Methodology Overview

To illustrate again, Zernig et al. (2008) compels treatment providers of court-mandated populations to consider psychotherapy before medication as a first response with longer-lasting treatment gains. At the same time, the existence of high verbal ability as an aggravating factor for future violence was also concluded by Johansson and Kerr (2005). If previous theories (Cleckley, 1941) connecting intelligence to psychopathy might be accurate (Salekin et al., 2004), implementing more advanced curricula to meet higher levels of psychopathy is indicated. Research summarizes the importance of an educational intervention for group treatment of sex offenders. Cognitive Behavioral Therapy is reified to be a premiere intervention for reducing recidivism because CBT involves PE (Barron et al., 2002). Although the treatment efficacy of CBT and PE has been well-studied (Barron et al., 2002, Lindsay et al., 1992), little is known about using

PNI as a means of PE for court-mandated treatment. If the PE of PNI can successfully reduce an offender's negative valence of emotion, then affect regulation becomes the main tool that the clinicians can utilize to meet the demands of the court and the needs of the client. If that affect is positive, the client benefits from treatment, becomes open to learning better coping behaviors, and their chances of recidivism are lessened. If that affect is negative, then the client's treatment appears significantly more difficult and in many cases, the treatment outcome looks morbid. Regardless, affect is the avenue that clinicians can tap into as a way at enhancing treatment gain.

By learning the skills of affect regulation, the client has an improved chance of coping with difficult emotions, which can affect the life course. The valence of emotion therefore enhances or worsens the prognosis for disease and illness, and disease and illness affect emotion in a bidirectional manner (Kiecolt-Glaser et al., 2002). Affect is one option for enhancing treatment gain and it can be influenced through the PE of PNI. Psychoneuroimmunology posits that individuals can intervene psychologically to benefit their body's physiology. Given that affect dictates progress in offender counseling, finding ways at increasing positive affect in clients should be of utmost importance to offender therapists. In offender counseling, positive affect means healthier lifestyles, mindsets that are more manageable, better attendance records, better group dynamics, and more expedient individual progress. These implications ultimately set forth a prognosis with better outcome for the client and better outcome for protecting the community at large. If the purpose is to keep our communities safe, the new modality of PNI paves the way for reducing offender recidivism.

The purpose of this quasi-experimental study was to examine the extent to which intervening with PE (which utilized PNI) enhanced treatment efficacy, by reducing risk of offender recidivism scores in court-mandated treatment. The expectation for findings demonstrates how implementing PE to a treatment plan of court-mandated treatment has an effect on that client's risk of recidivism. The effect is that it reduces a client's risk of recidivism. When clients are taught how to regulate their bodies emotionally with strategies gained from emotional and behavioral self-regulation through the education of PNI, clients are less likely to reoffend. Additionally, the relationships between dosage of treatment, level of education, presence of negative valence of emotion, existence of prior criminal history, presence of financial problems, presence of a negative social support group, and reduction of recidivism scores is explored. Specifically, the extents to which the control variables and key covariates mitigate or aggravate the dependent variable were examined. This chapter describes the method for the current study, including descriptions of the study participants, rationale for the mode of administration used, research design, and details about the data analysis. This study was conducted with permission from the Antioch University Institutional Review Board.

Research Design

This study examined the extent to which intervening with PNI enhanced treatment efficacy by reducing risk of offender recidivism scores in court-mandated treatment. Specifically, this study investigated the extent to which implementing the PNI treatment intervention was associated with decreased recidivism in court-mandated treatment. Significant effects were evaluated using regression beta coefficients with t-value and

significance of t-values associations, respectively.

The quantitative research design employed in this study was a repeated measures/pretest-posttest design. The same subscales were measured on the LS/CMI at Time 1 and Time 2. Thus, a repeated measures design was the best fit for the present study, because this design utilized the same participants with every condition of the research, including the control (Shuttleworth, 2009). Additionally, a repeated measures design decreased the deviation of measures of treatment effects, enabling statistical inference to be drawn from smaller samples (Barret, 2013). In other words, repeated-measures designs have greater power to detect experimental effects. With this design, the researcher manipulated the levels of the independent variable (Mertler & Vannatta, 2013). In true experiments, the researcher possesses authority over the levels of the independent variable (Mertler & Vannatta, 2013). However, in this present study, the researcher randomly assigned which offenders would be exposed to the psychoeducation of PNI and which offenders would be assigned to the non-equivalent control group without PNI treatment.

In this model, the dependent or outcome variable was reduction in the participant's chance of recidivating following treatment as measured by the LS/CMI. The independent or question predictor variables were the treatment intervention of PNI (18 months and 24 months of treatment). The control predictor variables were age and ethnicity. The key covariates were financial problems, level of education, and presence of negative social support. It should be noted that the reference category for this analysis were those offenders who were Caucasian and had a female victim. This is because the

majority of the predictor variables were dichotomous and thus, all slope coefficients related to the dichotomous predictors were demonstrated whether or not there was a difference compared to this reference category. The reference category was chosen according to the ethnic background and victim-gender type of the majority of participants.

The quasi-experimental research pretest-posttest design for this study was created by randomly assigning two subgroups of the sample to two independent groups. Each of these two independent groups was assigned randomly to one of two categorical independent variables: a non-equivalent control group that would receive PE without PNI and an experimental group that would receive PE (which utilized PNI). The participants for this study were a convenience sample of 86 adult males (aged 19-64 years, mean = 39.15) on formal supervision in the State of California mandated to sex offender treatment per the terms and conditions of their criminal sentence. To be clear, all groups of sex offenders received PE. A group of sex offenders not receiving PE could potentially make them more dangerous to children. However, the distinction in the present study was the difference between PE alone (control group) and PE with PNI (experimental group).

The two independent/question predictor variables: treatment intervention of PNI (18 months and 24 months of treatment) were compared on one dependent variable: reduction in the participant's chance of recidivating following treatment. The outcome variable was calculated by subtracting the percent chance that the offender would reoffend (based upon the LS/CMI total risk score) at time one from the percent chance of reoffense at time two. The results of this assessment placed them in one of two groups:

lower risk of recidivism versus higher risk of recidivism. In this case, the independent variables were categorical and the dependent variable was continuous. The outcome measure (risk of recidivism) was the ordinal given the LS/CMI assessment employed in this study measuring recidivism scores according to low, medium, and high risk of recidivism.

This study also examined any indirect relationship between an offender's risk of recidivism scores, financial problems, family/marital satisfaction and level of involvement, amount of social support (companions), and presence of alcohol or drugs while intervening with the treatment intervention of PNI. Multiple linear regression analyses were used to examine the unique and combined variance in offender risk of recidivism scores as mitigated or aggravated by several control predictor variables (length of treatment, age, mental illness, and ethnicity) and several key covariate variables (presence of financial problems, level of education, presence of negative social support, and family/marital satisfaction). First, descriptive data was obtained using archival data taken from LS/CMI pretests and posttests. Collection of archival data was modeled after a retrospective cohort study because the current study examined existing data (Abutarbush, 2008) about cohort members who share a common exposure factor (Doll, 2001). Second, bivariate analyses were conducted. Third, multiple linear regression analyses were conducted. Scores on rating scales were analyzed using the Statistical Package for the Social Sciences, 21.0 version (SPSS; SPSS Inc., 2015). The present study used a significance level of 0.05. A two-tailed t-test was used since the possibility of the relationship was tested in both directions. (UCLA: Statistical Consulting Group, 2016).

Employing a quasi-experimental repeated measures design, the following research questions were investigated:

1. To what extent does implementing the PNI treatment intervention, associate with decreased offender recidivism in court-mandated treatment?
2. If an effect between groups is found in Research Question 1, to what extent does increasing the PNI treatment dosage to 24 months modulate this effect or difference between the experimental and control group?
3. If an effect between groups is found in Research Question 1, is the effect altered based upon individual characteristics of the offender.

Specifically:

- a) Does the effect found between groups differ based on demographic characteristics (ethnicity, age) of the client?
- b) Does the effect found between groups differ based on the economic status (e.g., financial problems) of the client?
- c) Does the effect found between groups differ based on the offender having negative companions (procriminal support group)?

Limitations of Design

The present study was modeled after a retrospective cohort study because this one examined existing data (Abutarbush, 2008). Retrospective cohort studies use relevant information about cohort members who share a common exposure factor (Doll, 2001).

The data gathered was taken from LS/CMI pretests and posttests. The relevant information

was obtained from past records, for purposes of resolving the intervention's impact on the cohort, as compared to similar cohort samples not introduced to the intervention (Doll, 2001). Therefore, using data before and after a treatment intervention could elicit what differences the intervention caused (Lamb, 2005). Used in clinical research, epidemiological research forms evidence-based practices by analyzing risk factors for disease and examining protective factors for health (Porta, 2014). Moreover, versions of LSI instruments (e.g., LSI-R, LSI-R:SV) were found to be reliably scored from retrospective coded file data (Ferguson, 2009), and the present study concerned analysis of retrospective coded file data. Thus, modeling the current study, a retrospective investigation, after retrospective cohort studies utilized in epidemiological research, seemed the best fit for studying the risk factors and protective factors of offender recidivism. Doll (2001) argues retrospective cohort studies have proven themselves as an indispensable instrument in epidemiological research. Studies reveal retrospective studies have garnered excitement and use throughout research (multiple references as cited in Brooks-Holiday, 2016). However, limitations exist in modeling the current study after a retrospective study.

First, retrospective studies give way to threats in validity (Lamb, 2005). Due to self-report data and the retrieval of client answers by way of self-reflection, validity threats might consist of inadequate memory recall, insufficient history, and indirectly foster invented or biased answers (Brooks-Holiday, 2016; Lamb, 2005). Second, "most sources of error due to confounding and bias are more common in retrospective studies than in prospective studies" ("Prospective vs. Retrospective", 2016). Bias is a source of

error that causes an inaccurate measure of effect or inaccurate degree of relationship (“Prospective vs. Retrospective”, 2016). In other words, multiple factors can distort the true effect of an intervention by decreasing or increasing the measures of that effect (“Prospective vs. Retrospective”, 2016). Some examples of bias that may interfere with the results of the present study include selection bias, observation bias, and/or losses to follow-up.

To combat observation bias, corroboration of multiple information sources were used. Data from collateral police reports, court proceedings, and criminal history were analyzed in addition to the self-report provided by offenders during testing periods. Using multiple sources of information to score LS/CMI results eliminated self-report bias (e.g., if the offender was faking good, than the results would appear favorable to the offender) and eliminated observation bias by having the interviewer calculate scores from both the offender self-reports as well as actuarial data (e.g., criminal offense history). To combat bias consisting of losses to follow-up, the present study used only those sample participants who remained in treatment at or beyond the 18-month and 24-month testing intervals.

Unfortunately, selection bias remains a limitation of the present study. That is, analyzing multiple forms of data of a treatment effect on a sample of 86 offenders cannot directly represent the effect that treatment may have an entire population of offenders. Also, multiple control groups were not used in the present study. Analyzing multiple control groups is a strategy to combat bias (“Prospective vs. Retrospective”, 2016). Standardized observations (e.g., blinding, double blinding, and triple blinding) are another

strategy to combat bias. However, another limitation of the present study is its potential problems for a lack of blinding. For example, the same treatment provider administered LS/CMI ratings at Time 1 (pretest) and Time 2 (posttest) as well as provided the PNI PE treatment. These procedures enhance the possibility of observation (interviewer) bias, which may interfere with the measure of true effect.

Sampling Procedures

Power Analysis

According to Gray and Kinnear (2012), “the power of a statistical test is the probability that the null hypothesis will be rejected if it is false” (p. 223). According to Cohen et al. (1998), if the null hypothesis is rejected when it is false, a statically significant result can be demonstrated. “Significance tests that lack statistical power are of limited use because they cannot reliably discriminate between null and the alternative hypothesis (H_1) of interest” (Faul, Erdfelder, Buchner, & Lang, 2007, p. 175). To obtain a statistically significant result, the first step for researchers is to acquire enough participants in the study so that statistical tests have sufficient power (Gray & Kinnear, 2012). Researchers have concluded that a power level of at least 0.75 is necessary for tests (Gray & Kinnear, 2012). Field (2013) advises that when a non-significant effect is found, there was not enough power. By this same token, Field (2013) advises that when a significant effect is found, enough power was provided. Field (2013) suggests using power to calculate the required sample size by using computer programs, such as G*Power, for the actual computations.

The necessary sample size for this study was decided by using the G*Power

analysis program. The G*Power analysis program is used to perform five different types of power analysis (e.g., *a priori* analysis, compromise analysis, criterion analysis, post hoc analysis, sensitivity analysis) for statistical tests in the social behavioral, and biomedical sciences (Faul et al., 2007). An *a priori* analysis (Faul et al., 2007) was administered for this study.

In *a priori power analyses* (Cohen et al., 1988), sample size N is computed as a function of the required power level $(1 - \underline{B})$, the prespecified significance level $\underline{\alpha}$, and the population effect size to be detected with probability $1 - \underline{B}$. *A priori analyses* provide an efficient method of controlling statistical power before a study is actually conducted (see, e.g., Bredenkamp, 1969; Hager, 2006) and can be recommended whenever resources such as the time and money required for data collection are not critical. (Faul et al., 2007, p. 176)

As a general rule, the required power level $(1 - \underline{B})$, should be at least .80 for revealing a medium sized effect of .15 when using the conventional .05 criterion of statistical significance (Cohen et al., 1988). Administering the G*Power analysis program, the *a priori* power analysis informed at least 73 subjects were necessary to have 80% required power if the population effect size is larger than .15. The sample size consisting of 86 offenders is therefore sufficient for this study.

Sampling

In statistics, sampling is concerned with the selection of a subset of individuals from within a statistical population to estimate characteristics of the whole population. Given the researcher's desire to generalize the results of the sampling to a population, this

approach is also what makes the study quantitative. In the present study, the sample was a convenience sample, a pre-existing group of offenders selected for participation in that particular group as per the terms and conditions of probation or parole.

Participants

The participants for this study were a convenience sample of 86 males (aged 19-64 years, mean = 39.15) on formal supervision in the State of California who consented to sex offender treatment as part of the terms and conditions of their probation or parole. With a mean age of 39.15, the range of ages was 45 with a standard deviation of age at 11.404. Table 1 presents descriptive analyses for each offender's age. Of these 86 participants, 65 comprised the experimental group and 21 comprised the control group. Of the 65 participants in the treatment group, 18 offenders remained in treatment for at least 18-months and 47 remained in treatment for at least 24-months. There were 48 sex offenders on probation and 38 sex offenders on parole. Participants came from various ethnic backgrounds: 38 were Caucasian, 25 Hispanic, 16 African-American, and 7 Asian American. Other demographic variables included the levels of education, presence of family/marital support, presence of financial problems and presence of negative social support as well as history of antisocial pattern or antisocial personality disorder. Of the participant sample, eight offenders had significant financial problems, 42 indicated having the presence of some form of negative social support in their life, and 80 indicated having some degree of history of alcohol or drugs. Of the 86 participants, 76 reflected having some degree of marital/family problems and 57 indicated having deficiencies in education and employment. Of the participant sample, only one respondent entered treatment with

no prior criminal history, thus 85 reported some degree of prior involvement with the legal system. Of the 86 participants, one participant was given a diagnosis of Schizophrenia and 32 showed a history of antisocial pattern. When looking at the gender of their victims, 19 offended solely against male children, 59 offended solely against female children and 16 offended against both male and female children. In terms of their specific offenses, 42 committed some form of child molestation, 23 committed rape, and 21 were convicted of possession of child pornography. Because of the lack of distinction between “hands-on” and “hands-off” offenses in existing research, special effort was made to examine “hands-on” offenders versus “hands-off” offenders as a factor in this study. It is plausible that the offense typology each offender fell under would mitigate or aggravate the degree to which the offenders accepted, understood, and learned from the treatment intervention of PNI.

Of these 86 male offenders, 65 received exposure to the PE of PNI as conjunctive therapy to their current curriculum. This treatment phase was called the implementation of PNI as PE conjunctive to their regular agency curriculums. These offenders received the added elements of PNI during 90-minute sessions of group psychotherapy, which did not curtail regular requirements of sex offender treatment under the state statutes. The treatment or experimental group were administered the PNI weekly for 18 to 24-months. All treatment offenders were informed of the dynamic and violence risk assessment tools prior to the administration of the treatment, and all 86 male offenders completed pre-test assessments prior to their mandated therapy and post-treatment assessments at 18- or 24-month follow-ups. Raw scores, in aggregate, from these instruments were collected. Of

the 86 male offenders, 21 male offenders in the non-experimental control group remained unexposed to the treatment intervention of PNI yet continued their regular agency curriculum requirements.

Table 1. Descriptive Analyses for Each Offender's Age (n=86).

Descriptives		Statistic	Std. Error	
Participant's Age	Mean	39.15	1.230	
	95% Confidence Interval for Mean	Lower Bound	36.71	
		Upper Bound	41.60	
	5% Trimmed Mean	38.95		
	Median	38.50		
	Variance	130.059		
	Std. Deviation	11.404		
	Minimum	19		
	Maximum	64		
	Range	45		
	Interquartile Range	16		
	Skewness	.283	.260	
	Kurtosis	-.789	.514	
Change in the Participants Chance of Recidivating Following Treatment	Mean	8.7326	.52649	
	95% Confidence Interval for Mean	Lower Bound	7.6857	
		Upper Bound	9.7794	
	5% Trimmed Mean	8.6528		
	Median	8.2000		
	Variance	23.839		
	Std. Deviation	4.88251		
	Minimum	.70		
	Maximum	18.20		
	Range	17.50		
	Interquartile Range	6.20		
	Skewness	.097	.260	
	Kurtosis	-.727	.514	

Data Collection

Initial Procedures

Acquisition of the archival data necessary for this study occurred in several steps. A total of 86 males (aged 19-64 years, mean = 39.15) identified as probationers and parolees on formal supervision in the State of California, Counties of Ventura and Santa Barbara consented to sex offender treatment as part of their probation or parole terms and conditions. The overwhelming majority of participants (86 out of 89) adhered to their terms and conditions of probation or parole, which mandated that sex offender treatment last a minimum of 36-months. For purposes of our present study, an insignificant number of participants (three) dropped out of their mandated sex offender treatment prior to the 18-month testing interval. Thus, the sample consisted of 86 offenders who were assessed at 18-month and 24-month testing intervals.

Sex offender treatment consisted of at least 24-months of ongoing court-ordered weekly treatment. Having accrued the necessary certification prerequisites by the CASOMB, the therapist was qualified as a treatment provider to administer and score the dynamic and violence risk assessment tools used to determine sex offender risk. These assessment tools are the Structured Risk Assessment- Forensic Version Lite (SRA-FVL) and the LS/CMI. Under the CA Penal Code 290.07, the treatment provider was authorized by statute to administer the SARATSO and was trained pursuant to Section 290.06 or 290.09.

Second, in order to complete these assessments within the parameters of the terms and conditions of their probation or parole, offenders were interviewed at various

agencies in outpatient treatment facility interview rooms for approximately three hours. Clinicians outlined the purpose and voluntary nature of completing the risk assessments. Participants were informed of the limits of their confidentiality and provided informed consent forms. Informed consents were signed upon intake and prior to the initial assessment phase of the offender's treatment. In their informed consent and intake packets, all offenders acknowledged understanding that they would be tested prior to treatment commencing and while involved in treatment.

Prior to the evaluations, all offenders were advised of their limits of confidentiality. They were advised of the nature of the present evaluations and the evaluations non-therapeutic purpose. Offenders were informed of the nature and purpose of the interview: to determine what level of risk and needs they scored (as measured by the LS/CMI) as compared to a sample of 79,523 male community offenders from North America. The risk/needs score from their LS/CMI assessment would determine their level of risk in order to determine the amount and duration of treatment they would receive in sex offender treatment under California penal code 290.09 (a)(1). Issues of confidentiality and mandated reporting were explained to every offender. Offenders were also advised that the information obtained would be included in a written report, which would be submitted and reviewed by the Department of Justice. During the initial administration of testing, participants were treated consonantly with ethical standards of the treatment of human subjects. Participation was voluntary and participants were informed of their right not to participate in the assessment phase of their treatment. Offenders were advised that if they withdrew consent during the course of the evaluation

or treatment, they understand that the evaluation data already obtained would be reported. Participants were also informed of their right to discontinue participation in their assessments at any time. According to County Probation and Parole Departments, withdrawal from such assessment procedures in the context of court-mandated sex offender treatment, could affect offenders' status on probation or parole. Each offender stated they were able and willing to proceed with the interview. Each offender read aloud and signed a Notice of Evaluation as a 290-registered sex offender, which provided information about the penal code procedures. After each offender's questions about the interview procedure were answered, they agreed to participate in a clinical interview pursuant to 290.09(a)(1) and Section 290.05 or 1203 of this code or Section 706 of the Welfare and Institutions Code. Offenders signed the informed consent accordingly and did not decline to answer questions by this principal investigator. Participants completed and returned their consent forms at their second intakes prior to pretest assessment measures being executed. The assessments were administered on offenders upon second intake and again at 12-24 month intervals. In addition to the above, the principal investigator was present during all first and second orientations at County of Santa Barbara Probation Department in Santa Barbara to review the purpose and voluntary nature of treatment. Additionally, a clinician was selected based on the degree to which they serviced offenders in county probation departments in or around Southern California region.

The answers obtained from offenders' clinical interviews as well as relevant records were used to score their dynamic and violence risk assessment tools designed to

determine sex offender risk. The raw data from the offenders' answers was entered into the respective offender's LS/CMI assessment test protocols. The assessment tests protocols were submitted to the Department of Justice by means of Probation or Parole departments or electronically submitted using MHS Assessments online LS/CMI portal. Overall, approximately 89 offenders had an opportunity to participate in their required treatment, and 86 of them actually participated. Initially, 86 consent forms were provided at all orientations and 86 were returned completed, yielding a response rate of 100%.

Archival Data

The type of primary source material used was archival data. The archival data was permitted to be culled solely by persons authorized by statute to administer the State Authorized Risk Assessment Tool for Sex Offenders, and trained pursuant to Section 290.06 or 290.09, and any person acting under authority from the SARATSO Review Committee as an expert to train, monitor, or review scoring by persons who administer the SARATSO pursuant to Section 290.05 or 1203 of this code or Section 706 of the Welfare and Institutions Code. Given the source of information, it can be expected that the data may at times be biased, and in different ways at different times. The source of information was taken into account when using the data. The initial instrument administrations were ordinarily written with the expectation that one's immediate supervisors and the Department of Justice would be reading them. The description of each offender included the convicted perpetrator, the details of the event and the victims (de-identified) of the event, and the response of the administration.

Archival data from the offenders' scores, in aggregate, was used for the present

study. The offenders' risk scores, in aggregate, were separated from all offender-identifying data and each domain of scores was given a confidential key in order to keep each offender's scores separate from other offender's scores. Scores were numbered and filed separately from completed intakes, to ensure the anonymity of each participant. Drawing on archival testing and interview data collected during 18- and 24-months of fieldwork, the pretest and posttest scores for risk of recidivism before and after the implementation of PNI as a means of PE could be traced. Experiences of treatment with an offender population shaped individual beliefs about the possibility of future offending behavior. These beliefs in turn informed individual decisions about participation in future violence and how these decisions had lasting effects on outcomes of violence risk.

A limitation of this study was its use of archival data. Archival data, in aggregate, allows for retrospective examination of scores. However, archival data does not allow the researcher to go back in time and ask participants specific questions related to the potential cause of deficits in certain domains of their lives. Only those questions for each item of the assessment were asked during the initial test administration. The answers from each offender elicited the scores for each domain of that offender's life as well as the offender's overall risk/needs score. Therefore, archival data usage does not allow the possibility to ask participants to what degree their individual subtest scores decreased or increased because of having new education about their emotional regulation and perceived stress.

A strength of this study was that through the inclusion of key covariates and control predictors in the regression models, and through testing for interactions between

the question predictors and each of the control variables and key covariates, this study was able to examine the relationship between variables. Thus, if the treatment intervention of PNI did not show significant effect, the relationship between the intervention and each of the other variables would enlighten readers with the requirements for enhancing treatment efficacy in court-mandated treatment. For instance, it may not be that the PE of PNI reduced an offender's risk of recidivism in the absence of financial problems. Yet, it may be that the combination of family/marital satisfaction in conjunction with PNI treatment subsequently reduced the offender's risk of recidivism when considering financial problems. As Zachariae (2009) declared, "PNI may mean behavioral manipulation [could] affect immunity so as to influence health and survival" (p. 650). If satisfaction in family/marital relationships reduces stress, knowing the key components to reduce one's stress behaviorally could empower offenders with the necessary skills to combat procriminal attitude/orientation more easily. The present study carefully attends to this challenge.

Instrumentation

Risk factors are the hallmark of conventional offender risk assessment (Andrews et al., 2004). Risk factors comprise the offender characteristics and personal history that construct the offenders past and are commonly termed static or stable factors because they are slow to change (Andrews et al., 2006). Risk assessment that holds to a strict adherence of quantitative statistical methods are also termed actuarial risk assessment (Andrews et al., 2004). Based on their criminal history, offenders carry certain static (unchangeable) and dynamic (changeable) risk factors (Andrews & Bonta, 1994), which have been found

to be associated with recidivism (Gendreau, Little, & Goggin, 1996). Since dynamic risk factors can change, they are characteristics of offenders that can either mitigate or aggravate risk of recidivism (Andrews, Bonta, & Hoge, 1990). Meta-analyses of risk and/or need factors in offender populations have defined categorical degrees of risk factors for recidivating (Bonta, Law, & Hanson, 1998; Gendreau et al., 1996; Hanson & Morton-Bourgon, 2004; Lipsey & Derzon, 1998, as cited in Andrews et al., 2006). Meta-analyses also affirmed static and dynamic risk factors are almost equally associated with recidivism (Gendreau et al., 1996, as cited in Andrews & Bonta, 1995).

According to Andrews et al. (2006), the four greatest risk factors for recidivism are: (1) criminal history, (2) antisocial personality, (3) antisocial/ procriminal attitude, and (4) antisocial companions/ antisocial support group. Bonta, Law, and Hanson (1998) showed consistent findings indicating criminality and antisocial personality (criminal history, procriminal attitudes, and criminal associates) as risk factors most associated with recidivism for both mentally disordered and non-disordered offenders. To a lesser but still noteworthy degree, additional risk factors consist of (5) substance abuse problems, (6) financial problems, (7) marital/family problems, and (8) leisure time/absence of anticriminal pursuits. While risk assessment tools target the identified risk factors above, findings from Andrews et al. (2004) demonstrate the LS/CMI as the foremost assessment for evaluating all eight risk factors. Even more recent research (Van der Knaap et al., 2012) hail the LS/CMI as one of the most widely adopted risk assessments for judicial systems embracing the RNR model

The Level of Service Case Management Inventory (LS/CMI)

The present study investigates the degree to which an offender's general chance of recidivating is reduced because of the treatment intervention of PNI through means of PE. Specifically, the study examined the extent to which educating (PE) offenders on immune system regulation (PNI) had a direct impact on reducing offender risk of recidivism. Also discussed was the indirect relationship that increased positive affect, because of PNI treatment, and how much this had an effect on reducing offender risk of recidivism. Research (Hudson and Ward, 2000; Maier, 2012) demonstrates changing mental states, learning coping skills, and increasing positive affect, expand options for increased positive results. Since immune system regulation can enhance positive mental states, offenders exposed to PNI treatment should have more treatment benefit.

The LS/CMI is a state-approved, state-required, evidence-based risk assessment tool that predicts an offender's risk of general and violent recidivism (<http://www.saratso.org>, 2016) The LS/CMI yields an overall score of offender risk of recidivism (Andrews et al., 2004). Recidivating is defined as being re-incarcerated within one year of release into the community (Andrews et al., 2004). The overall risk is determined from a combination of static risks and dynamic (criminogenic) needs calculated by a formula computing the sum of all risk and need item scores. Authors of the LS/CMI opine static risk and dynamic need as the two primary factors in generating a client's overall degree of risk (Andrews et al., 2004). The LS/CMI draws questions about specific domains from which the client answers orally and systematically. Specific domains allow the researcher to query responses before moving onto the next

subcomponent; for example, in instances if participants provided answers in contradiction between domains. The instrument best fit for evaluating and predicting risk of recidivism was the LS/CMI (Andrews et al., 2004; Gendreau et al., 1996; O’Keefe, Klebe, & Hromas, 1998).

Reliability and Validity

Reliability and validity are essential techniques used to evaluate the accuracy of measurement instruments in psychometrics (Bannigan & Watson, 2009). Research methods literature defines reliability as “the extent to which a measure is the same each time it is performed and by whoever performs it... [and validity] is totally predicated upon reliability and reliability in itself is insufficient” (Bannigan & Watson, 2009, p. 3238). Bannigan and Watson (2009) define reliability as the consistency of an instrument to provide the same data on multiple trials; whereas validity is the extent to which an instrument is legitimately measuring what the instrument is expected to measure. Researchers using assessment instruments are obligated to appraise the reliability and validity of their measures (Banningan & Watson, 2009). Baird (2009) discusses the dependency of validity on reliability, “When there is little or no consistency among staff members completing risk instruments, the validity of the system cannot be assumed” (p. 7).

The LS/CMI, a thorough inventory, estimates level of risk of recidivism according to an offender’s combined static and dynamic risk factors (Andrews et al., 2006). The Level of Service Inventory- Revised (LSI-R) was the predecessor, a third generation empirically based assessment, from which the LS/CMI was born (Andrews & Bonta,

1995; as cited in Andrews et al., 2006). The LSI-R and the LS/CMI assessments have been found to have superior validity and to be correlated significantly to general actual recidivism (Andrews et al., 2006). “The overall mean predictive criterion validity estimates for the LSI-R (.36) and the LS/CMI are quite respectable with the latter equaling or exceeding all other overall mean validity estimates in... general recidivism” (Andrews et al., 2006, p.15). With the advent of the LS/CMI, researchers have found the LSI-R and LS/CMI to have increased validity and a heightened correlation to violent recidivism as opposed solely to general recidivism (Barnoski & Aos, 2003; Girard & Wormith, 2004; as cited in Andrews et al., 2006). O’Keefe, Klebe, and Hromas (1998) analyzed and compared the convergent validity of the LSI with other instruments calculating comparable concepts.

In a meta-analysis summarizing the validity of various risk predictors, the LSI was found to be the best predictor of risk when compared to other risk assessment instruments, antisocial personality scales, static characteristics, and dynamic factors (Gendreau et al., 1996). (O’Keefe et al., 1998, p. 5)

Additionally, the LSI-R was proven to have incremental dynamic criterion validity (Andrews & Robinson, 1984; Motiuk, Bonta, & Andrews, 1990; Raynor, Kynch, Roberts, & Merrington, 2000; as cited in Andrews et al., 2006). In a study boasting of the LSI-R’s predictive criterion validity (Holtfreter, Reisig, & Morash, 2004), the LSI-R domains of financial problems, education/employment, and living accommodations, were found to be significantly associated with recidivism (Andrews et al., 2006). Furthermore, other studies (Rice & Harris, 1995) found LSI-R offender scores to be related strongly to

violent and nonviolent recidivism. When compared to other risk assessments, the LSI was found to be the best risk predictor for recidivism among parolees and during follow-up assessments (O'Keefe et al., 1998). The LSI also accurately predicted outcomes for probationers (O'Keefe et al., 1998). An earlier validation study (Andrews, 1982) demonstrated LSI predictive validity concerning supervision accomplishment, treatment result, and recidivism. A subsequent cross-validation study (Andrews & Robinson, 1984) showed a significant association between LSI scores, recidivism, and incarceration. Not isolated to probationers, LSI scores in studies (Bonta & Motiuk, 1992) of inmate populations demonstrated predictive validity of institutional misconduct, parole violations, and reincarceration following release.

Similarly, the next generation LSI assessment, the LS/CMI, was found in multiple studies (Andrews & Bonta, 2003; Andrews, Dowden, & Rettinger, 2001; Girard & Wormith, 2004; Rettinger, 1998) to have powerful validity and even greater predictive criterion validity (Andrews et al., 2006). Girard and Wormith (2004) sampled 630 nondisordered offenders and boasted results that demonstrated LS/CMI scores could predict general and violent recidivism. "Demonstrated reliability and predictive validity of the LSI-R can be found in a considerable body of research" (as cited in Flores et al., 2006, p. 524). In initial studies of probationers and prisoners, results demonstrated degrees of predictive validity were achieved (Andrews, 1995). In assessing probationers, LS/CMI scores were reliably linked with any recidivism, violent recidivism, and confinement consequent to reconviction (Andrews, 1995). The LS/CMI scores were also associated with reincarceration of prisoners after one year of community release (Andrews, 1995).

Examining a sample of 135,791 offenders, LS/CMI scores were correlated significantly to violent and general recidivism (Andrews et al., 2004).

Concerning reliability of the LS/CMI as well as the reliability of LS/CMI predecessors, it appears that the research (Baird, 2009; Flores et al., 2006; Van der Knaap, Leenarts, Born, & Oosterveld, 2010) cannot agree on reliability findings just as some research (Baird, 2009) points to a lack of study on the LS/CMI inter-rater reliability itself. In favor of the reliability for the LS/CMI and its earlier versions, Girard and Wormith (2004) cite research (Bonta & Motiuk, 1990, 1992) demonstrating the reliability and validity of the initial LSI risk assessment. Sufficient internal consistency and temporal stability were found in the LSI (Bonta & Motiuk, 1990, 1992 as cited in Girard & Wormith, 2004). Additionally, Flores et al. (2006) cited ample research proving the reliability and predictive validity of the LSI-R. Research on LSI demonstrated intra-rater and inter-rater reliability after assessors scored similar results over varying time periods (Flores et al., 2006).

On the other hand, authors (Van der Knaap, Leenarts, Born, & Oosterveld, 2010) concluded the research on LS/CMI inter-rater reliability to be lacking or limited. Andrews, Bonta, and Wormith (2004) evaluated the inter-rater reliability of the LS/CMI using a small convenience sample of 18 participants without uniform repeat testings. A later study included a larger sample of 91 offenders, but with a year between testing periods (Andrews et al., 2004). While Girard and Wormith (2004) found the complete scale for the LSI-Ontario Revision to have superb internal consistency and found the reliability of the LSI to be similar to the reliability of the PCL-R, alpha coefficients differed noticeably on

the individual subscales. Thus, varying degrees of internal consistency were found across the eight subscales, indicating that the LS/CMI's internal consistency and reliability was actually decent at best (Girard & Wormith, 2004). According to other research (Austin et al., 2003; as cited in Baird, 2009), tests of reliability of the LSI-R demonstrated severe flaws. Baird (2009) hypothesized that the lack of greater internal consistency was due to those individual subscales (e.g., Leisure/Recreation, Companions/ peer support, and Family/Marital) that required greater subjective judgment. Baird (2009) cautioned, "The more of these factors included in a scale, the greater the potential for classification error" (p. 7). The lack of internal consistency of individual subscales is problematic considering that the LS/CMI total risk/needs score is achieved after a sum of all individual subscale scores. Likewise problematic, is the contradictory research supporting the reliability of earlier generations from which the LS/CMI was adapted. Because of the apparent dearth of research supporting the inter-rater reliability of the LS/CMI, limitations of the current study are later discussed.

The current study focused on the risk assessment section of the LS/CMI, which includes 43 items that evaluate the risk of recidivism according to: (1) Criminal History, (2) Leisure/Recreation, (3) Alcohol/Drug Problems, (4) Education/Employment, (5) Companions (composition and nature of core social network), (6) Procriminal Attitude Orientation, (7) Family/Marital, and (8) Antisocial Patterns (antisocial personality disorder) as cited by Andrews et al. (2004). The questions were answered verbally by the respondent to the researcher in 2-3 hour devoted intervals per participant. Sources of information utilized in conjunction with the offender interview contained the participant's

police report, facts of the offense, probation referral, pre-plea report, prior record of arrests, and Static 99-R assessment scores as measured by probation and parole.

Offenders' LS/CMI scores of risk of recidivism were to be assessed pre-treatment upon intake and post-treatment at 12-month, 18-month and 24-month testing intervals. Given the aforementioned eight domains assessed by the LS/CMI, it is hoped that improvement in the LS/CMI total scale score or individual subscale scores are improved between pre-test and post-test testing periods after the intervention of PNI treatment. Since the total scale score is obtained by the sum of all individual subscale scores, the total scale score reflects the offender's risk of recidivism. Therefore, a reduction in the total scale score would reflect a reduction in the risk of offender recidivism, and thus equate an improvement between testing intervals.

Offenders' level of stress was queried by self-report during each LS/CMI testing period. For purposes of the current study, participant's rated their level of stress by subjectively weighing their present life circumstances, amount of social support, current relationship difficulties, level of self-esteem, hobbies, and prosocial involvement in meaningful leisure activities. The present study will posit that the implementation of PNI as PE reduced the level of subjective stress as self-reported by the offender. Thus, the intervention of PNI treatment has the power to influence improvement in some or all areas of participant life as assessed by the eight LS/CMI subscales. Examining follow-up 12-month, 18-month and 24-month post-treatment testing intervals enables the principal investigator to see the improvement, or lack thereof, in the eight domains of participant life as elicited by the LS/CMI.

Data Analysis

Multiple Linear Regression Analysis Procedures

In quantitative research (Cohen, West, & Aiken, 1983), a multiple linear regression analysis is conducted to predict the values of a dependent variable, given a set of explanatory variables (Cohen, West, & Aiken, 2003). In the case of this study, regression analyses were used to examine the unique and combined variance in offender risk of recidivism scores, as mitigated or aggravated by several control variables (length of treatment, age, mental illness, and ethnicity) and several key covariate variables (financial problems, family/marital satisfaction and level of involvement, amount of social support and presence of alcohol or drugs). The data was split according to victim type (“hands-on” versus “hands-off” offenses) as well as penological type (probation versus parole) and executed additional regression analyses. The present investigation met the criteria for multiple linear regression analysis outlined by Cohen, Cohen, West, and Aiken (2003) in that the dependent variable (participant reduction in risk of recidivism scores) was studied as a function of or in relationship to the independent variable of interest (PNI treatment intervention). This study also met the criteria for conducting multiple linear regression analysis outlined by Brace, Kemp, Snelgar, and Lee (2006) in that the number of participants targeted was substantially higher than the number of predictor variables in the study.

Before multiple linear regression analysis was conducted, the data were tested for violation of statistical assumptions, as suggested by Osborne and Waters (2002).

Normality, linearity, and homoscedasticity are the assumptions tested. Scatter plots, and

the normal probability plot (see Ryan & Joiner, 1976) were used to test whether or not the residuals were normally distributed (the assumption of normality). A scatter plot was used to examine each predictor variable separately for linearity with the dependent variable (Berry & Feldman, 1985; Cohen, West, & Aiken, 1983; Pedhazur, 1997). A graph of the predicted variables versus the residuals was used to determine whether there was a linear relationship between the combination of the predictor variables and the dependent variable. An indication of homoscedasticity was that the variance of errors was the same across all levels of the independent variable. A difference in the variance of errors at different values of the independent variable indicated heteroscedasticity. Marked heteroscedasticity can lead to distorted findings and can weaken the analysis (Berry & Feldman, 1985; Tabachnick & Fidell, 1996). Osborne and Waters (2002) suggest that this assumption be tested through visual examination of plots. As a result, the plot of predicted values versus the regression-standardized residuals was examined to test the assumption of homoscedasticity.

In the following chapter, analysis of data for the present investigation is presented in multiple steps. First, exploratory data analyses are examined that include descriptive analyses and frequencies. Second, cross tabulation among study variables is highlighted. Third, five different multiple regression analyses that account for every offender in the study are explored. Finally, multiple regression analysis that account for the subgroups of 18- and 24-months of treatment are conferred.

Chapter 4: Results

Overview

This study examined the extent to which intervening with PE (specifically PNI) enhanced treatment efficacy by reducing risk of offender recidivism scores in court-mandated treatment. Further, the study examined the relationships between dosage of treatment, level of education, presence of negative valence of emotion, existence of prior criminal history, presence of financial problems, presence of a negative social support group, and reduction of recidivism scores was explored. Specifically, the extent to which the control variables and key covariates mitigated or aggravated the dependent variable was examined. The quantitative research design used to examine this relationship was a repeated-measures design with multiple linear regression analysis. This chapter will discuss the descriptive statistics, and the results of the multiple regression analysis, which highlight the relationship between participants' chance of recidivating following treatment and participants' economic status, presence of family/marital support, presence of negative companions, presence of drugs or alcohol, and 18- and 24-month dosages of treatment.

Results from Descriptive Analyses

Table 2 presents descriptive statistics for each offender's change in the participant's chance of recidivating following treatment. On average, offenders' recidivism risk percent was lowered by 8.6 percentage points (see Table 2).

Table 2. Descriptive statistics for each offender's change in the participant's chance of recidivating following treatment (n=86).

Descriptives		Statistic	Std. Error	
Change in the Participants Chance of Recidivating Following Treatment	Mean	8.5915	.50871	
	95% Confidence Interval for Mean	Lower Bound	7.5813	
		Upper Bound	9.6017	
	5% Trimmed Mean	8.4961		
	Median	8.2000		
	Variance	24.326		
	Std. Deviation	4.93209		
	Minimum	.70		
	Maximum	18.20		
	Range	17.50		
	Interquartile Range	6.20		
	Skewness	.171	.249	
	Kurtosis	-.731	.493	

Tables 3a and 3b present frequencies for the presence of antisocial patterns and antisocial personality disorder in the participant sample. Of the 86 respondents queried for the present study, Table 3b demonstrates that approximately two thirds of offenders (exactly 54 offenders, or 63%) did not have antisocial personality disorder prior to entering the study. These statistics can be expected considering that offenders released into the community may not have a prior criminal history that is pervasive enough to warrant an antisocial personality disorder diagnosis. Offenders whose behavior reflects repeated offenses may not come up for parole or probation.

Table 3a. Frequencies of PreTest Antisocial Pattern (n=86).

Pretest Scores of Procriminal Attitude and Orientation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	25	29.1	29.1	29.1
	1	28	32.6	32.6	61.6
	2	5	5.8	5.8	67.4
	3	14	16.3	16.3	83.7
	4	11	12.8	12.8	96.5
	5	3	3.5	3.5	100.0
	Total	86	100.0	100.0	

Table 3b. Frequencies of PreTest Antisocial Personality (n=86).

Pretest Scores of Antisocial Personality Disorder

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	54	62.8	62.8	62.8
	1	7	8.1	8.1	70.9
	2	14	16.3	16.3	87.2
	3	8	9.3	9.3	96.5
	4	3	3.5	3.5	100.0
	Total	86	100.0	100.0	

Table 4 presents cross tabulation for the breakdown of rape convictions per ethnic backgrounds. Of the 86 participants in the study, Table 4 reflects six Caucasians, four Hispanic, five African-American, and one Asian-American offender were convicted of rape. These crosstabs are surprising considering the degree to which these statistics of offender demographics and rape convictions are not consistent with existing literature.

Table 4. The number of participants who have committed rape within each racial category: Caucasian, Hispanic, African American, and Asian American (n=86).

Caucasian

	Participant is Caucasian		Total
	0	1	
Participant Committed Rape 0	37	33	70
1	10	6	16
Total	47	39	86

Hispanic

	Participant is Hispanic		Total
	0	1	
Participant Committed Rape 0	47	23	70
1	12	4	16
Total	59	27	86

African American

	Participant is African American		Total
	0	1	
Participant Committed Rape 0	60	10	70
1	11	5	16
Total	71	15	86

Asian American

	Participant is Asian American		Total
	0	1	
Participant Committed Rape 0	66	4	70
1	15	1	16
Total	81	5	86

Table 5 presents cross tabulation for the breakdown of child molestation convictions per ethnic backgrounds. Of the 86 participants in the study, nineteen Caucasians, seventeen Hispanic, five African-American, and zero Asian American offenders were convicted of child molestation. These descriptive statistics are consistent

with existing literature.

Table 5. The number of participants convicted of child molestation within each racial category: Caucasian, Hispanic, African American, and Asian American (n=86).

Caucasian

		Participant is Caucasian		Total
		0	1	
Participant Committed Child Molestation	0	26	19	45
	1	22	19	41
Total		48	38	86

Hispanic

		Participant is Hispanic		Total
		0	1	
Participant Committed Child Molestation	0	35	10	45
	1	24	17	41
Total		59	27	86

African American

		Participant is African American		Total
		0	1	
Participant Committed Child Molestation	0	35	10	45
	1	36	5	41
Total		71	15	86

Aasian American

		Participant is Asian American		Total
		0	1	
Participant Committed Child Molestation	0	39	6	45
	1	41	0	41
Total		80	6	86

Tables 6a, 6b, and 6c present frequencies for the breakdown of offenders with respective scores in the following domains: Criminal History, Education and Employment, Family/Marital, Leisure and Recreation, Companions, Alcohol or Drugs,

Procriminal Attitude and Orientation, Antisocial Personality Disorder. Of the 86 participants, Table 6 reflects 51 offenders scored a raw score of two and 14 offenders scored a raw score of six on prior criminal history, 25 offenders scored a raw score of two and 23 offenders scored a raw score of four on education and employment. In the domains of Family/Marital, 44 offenders scored a raw score of two and 30 offenders scored a raw score of one. In the domain of Leisure and Recreation, 25 offenders scored a raw score of two and 21 offenders scored a raw score of three. In the domain of Companions, 44 offenders scored zero and 21 offenders scored two. In the domain of Alcohol and Drugs, 29 offenders scored a raw score of two and 26 offenders scored a raw score of three. In the domain of Procriminal Attitude and Orientation, 28 offenders scored a raw score of one and 25 offenders scored a raw score of zero.

Table 6a. Frequencies for study variables (n=86).

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	1	1.2	1.2	1.2
1	4	4.7	4.7	5.8
2	51	59.3	59.3	65.1
3	2	2.3	2.3	67.4
4	6	7.0	7.0	74.4
5	6	7.0	7.0	81.4
6	14	16.3	16.3	97.7
7	2	2.3	2.3	100.0
Total	86	100.0	100.0	

Pretest Scores of Education and Employment

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 1	4	4.7	4.7	4.7
2	25	29.1	29.1	33.7
3	18	20.9	20.9	54.7
4	23	26.7	26.7	81.4
5	11	12.8	12.8	94.2
6	5	5.8	5.8	100.0
Total	86	100.0	100.0	

Pretest Scores of Family/Marital

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	10	11.6	11.6	11.6
1	30	34.9	34.9	46.5
2	44	51.2	51.2	97.7
3	2	2.3	2.3	100.0
Total	86	100.0	100.0	

Table 6b. Frequencies for study variables (n=86).

Pretest Scores of Leisure and Recreation

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	15	17.4	17.4	17.4
1	17	19.8	19.8	37.2
2	25	29.1	29.1	66.3
3	21	24.4	24.4	90.7
4	8	9.3	9.3	100.0
Total	86	100.0	100.0	

Pretest Scores of Companions

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	44	51.2	51.2	51.2
	1	8	9.3	9.3	60.5
	2	21	24.4	24.4	84.9
	3	12	14.0	14.0	98.8
	4	1	1.2	1.2	100.0
	Total	86	100.0	100.0	

Pretest Scores of Alcohol or Drugs

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	6	7.0	7.0	7.0
	1	5	5.8	5.8	12.8
	2	29	33.7	33.7	46.5
	3	26	30.2	30.2	76.7
	4	14	16.3	16.3	93.0
	5	6	7.0	7.0	100.0
	Total	86	100.0	100.0	

Table 6c. Frequencies for study variables (n=86).

Pretest Scores of Procriminal Attitude and Orientation

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	0	25	29.1	29.1	29.1
	1	28	32.6	32.6	61.6
	2	5	5.8	5.8	67.4
	3	14	16.3	16.3	83.7
	4	11	12.8	12.8	96.5
	5	3	3.5	3.5	100.0
	Total	86	100.0	100.0	

Pretest Scores of Antisocial Personality Disorder

	Frequency	Percent	Valid Percent	Cumulative Percent
Valid 0	54	62.8	62.8	62.8
1	7	8.1	8.1	70.9
2	14	16.3	16.3	87.2
3	8	9.3	9.3	96.5
4	3	3.5	3.5	100.0
Total	86	100.0	100.0	

Regression Results

After conducting a series of nested regression models predicting the reduction in recidivism, the final model included the following predictors: experiencing financial problems, family/marital support, antisocial companions, and the amount of treatment that the participants received (18 months or 24 months). In addition, the effect of both antisocial companions and financial hardship differed based upon the amount of treatment that participants received.

As can be seen from Table 7, the presence of financial problems initially predicted an increase in participants' chance in recidivating following treatment ($\beta = -4.06$, $p = .13$). However, treatment of 18 months mitigated, or increased, the reduction in the participants' chance in recidivating following treatment ($\beta = 12.29$, $p = .001$). Treatment dosage of 24 months surprisingly aggravated, or decreased, the reduction in the participants' chance in recidivating following treatment ($\beta = 10.82$, $p = .003$). This shows that participants who had financial problems while entering treatment and received a lesser dosage of treatment (18 months) proved a higher increase in the reduction of chance of recidivating than did participants who had financial problems while entering treatment and received a longer dosage of treatment (24 months). This means that at 18

months of treatment dosage, scores of risk of recidivism decrease for participants with financial problems. The dosage of 24 months of treatment still had a positive effect on increasing the degree to which a participants' chance of recidivating was reduced following treatment. However, when compared to a lower dosage of treatment, twenty-four months of treatment did not boast as much treatment efficacy.

As can be seen from Table 7, the presence of family/marital support has a mitigating effect on participants' chance of recidivating following treatment. The effect is that it is a positive one in reducing the risk score of recidivism following treatment ($\beta = 1.71, p = .009$). Also demonstrated in Table 7, the presence of companions serves as a mitigating factor for participants' chance of recidivating following treatment ($\beta = .77, p = .07$). The effect is that it is a positive one in reducing the risk score of recidivism following treatment. However, the presence of negative companions at 18 months surprisingly aggravated, or decreased, the reduction in the participants' chance in recidivating following treatment ($\beta = -1.60, p = .05$). This means that the presence of negative companions actually worsens as treatment approaches the 18-month dosage timeframe.

Table 7. Regression Predicting Reduction in Participants' Chance of Recidivating Following Treatment

		Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.200	1.371		.146	.885
	Experiencing Financial Problems	-4.064	2.663	-.243	-1.526	.131
	Eighteen Months of Treatment	4.061	1.488	.340	2.730	.008
	T18_X_Financial_Problems	12.293	3.448	.465	3.566	.001
	Twenty-Four Months of Treatment	4.665	.965	.478	4.833	.000
	T24_X_Financial_Problems	10.819	3.496	.409	3.095	.003
	Pretest Scores of Family/Marital	1.714	.641	.256	2.673	.009
	Pretest Scores of Companions	.767	.413	.188	1.858	.067
	T18_X_Companions	-1.597	.796	-.235	-2.005	.049
	Pretest Scores of Alcohol or Drugs	.690	.334	.175	2.064	.042

a. Dependent Variable: Reduction in the Participants Chance of Recidivating Following Treatment

Note: T18 = 18 Months of Treatment; T24 = 24 Months of Treatment; Pretest Scores of Family/Marital = Presence of Family/Marital Support in Participant Life; Pretest Scores of Companions = Presence of Negative Social Support Influence in Participant Life; Treatment was successful in helping to ameliorate the risk of recidivism of participants experiencing: (a) Financial Problems, (b) Family/Marital problems and (c) Companions. Eighteen months of treatment ameliorated the risk of recidivism of participants experiencing financial problems. However, eighteen months of treatment aggravated the risk of recidivism of participants experiencing negative social support.

Summary of Findings Related to Research Hypotheses

Hypothesis 1: Implementing the PNI treatment intervention in the experimental group produces a statistically significant effect between groups (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). That is, test scores of the treatment group evidence a statistically significant difference between the

experimental and control group, establishing strong evidence against the null hypothesis; H_0 is rejected in favor of H_1 . There was a significant bivariate correlation between implementation of treatment intervention and participants who were experiencing: (a) financial problems ($\beta = -4.06$, $p = .13$), (b) family/marital problems ($\beta = 1.71$, $p = .009$), (c) negative social support influence ($\beta = .77$, $p = .07$) and (d) participants whose history included the presence of alcohol or drugs ($\beta = .69$, $p = .042$). This variable was significant in Table 7 regression model and therefore the hypothesis was supported. Further, Table 2 demonstrates the majority of offenders' risk of recidivism scores decreased 1-2 percentage points following treatment with a mean decrease of 8.59.

While this hypothesis was supported, correlations did exist between the dosage of eighteen months of treatment ($\beta = 4.06$, $p = .008$) for participants having the presence of a negative social support group ($\beta = -1.60$, $p = 0.5$). Thus, in regards to offenders having both the presence of a negative social support group and 18 months of treatment, implementing PNI treatment would aggravate the association with decreased recidivism scores. Despite this correlation, treatment dosage of 18 months or 24 months still mitigated, or increased, the overall reduction in the participants' chance in recidivating following treatment ($\beta = 12.29$, $p = .001$).

Hypothesis 2H₁: Increasing the PNI treatment dosage to 24 months modulates a statistically significant effect or difference found between groups (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). Test scores of the treatment group exposed to 24 months of PNI treatment evidence a statistically significant difference in the effect found between the experimental and control group,

establishing strong evidence against the null hypothesis; $2H_0$ is rejected in favor of $2H_1$. There was a significant bivariate correlation between dosage of twenty-four months of treatment intervention ($\beta = 4.67, p < .001$) and participants who were experiencing financial problems ($\beta = 10.82, p = .003$). This variable was significant in Table 7 regression model and therefore the hypothesis was supported. Thus, results demonstrate a higher dosage of PNI treatment (24 months) more strongly associated with decreased recidivism.

Hypothesis $3aH_1$: There is a statistically significant effect found between groups that differ based on the particular ethnicity, and age of the offender (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). When controlling for variables: ethnicity and age of offenders, test scores did not evidence a statistically significant difference in the effect found between the experimental and control group. Thus, evidence could not reject the null hypothesis ($3aH_0$) in favor of $3aH_1$. In the regression analysis, there was no significance in relationship of participants' age to change in participants' chance of recidivating following treatment ($\beta = -.03, p = .48$). This variable was not significant and therefore the hypothesis was unsupported. Furthermore, there was no significance in relationship of participants' ethnic background to change in participants' chance of recidivating following treatment ($\beta = -.26, p = .84$; $\beta = .70, p = .63$; $\beta = -2.98, p = .14$). This variable was not significant and therefore the hypothesis was unsupported.

Also, results indicated there was no significant relationship between participants' age and the change in their chance of recidivating following treatment ($\beta = -.03, p = .48$),

and no significance in relationship of participants' ethnic background to change in participants' chance of recidivating following treatment ($\beta = -.26, p = .84$; $\beta = .70, p = .63$; $\beta = -2.98, p = .14$), therefore this hypothesis remains unsupported.

Hypothesis 3bH₁: There is a statistically significant effect found between groups that differ based on the economic status (e.g., financial problems) of the client (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). When controlling for variable: level of economic status (e.g., financial problems) of offenders, test scores evidence a statistically significant difference in the effect found between the experimental and control group, establishing strong evidence against the null hypothesis; 3bH₀ is rejected in favor of 3bH₁. It is important to note that the effect was a unique one and atypical to common assumptions. Common assumptions would surmise that having greater difficulty economically would create certain treatment barriers or treatment resistance for clients because of the psychosocial stressors of financial strife. However, results indicated a significant effect and the opposite to be true. The effect found was that offenders who have financial problems while being exposed to PNI treatment, actually have a stronger association to reduced recidivism scores, as compared to offenders who have little or no financial problems while entering treatment. There was a significant bivariate correlation between implementation of 24 month dosage of treatment intervention ($\beta = 4.67, p < .001$) and participants who were experiencing financial problems ($\beta = 10.82, p = .003$). Uniquely, there was an even higher significance in correlation between implementation of 18 month dosage of treatment intervention ($\beta = 4.061, p = .008$) and participants who were experiencing financial problems ($\beta = 12.29, p$

= .001). This variable was significant in Table 7 regression model and therefore the hypothesis was supported. It may be that offenders who have financial problems are less treatment resistant to psychological, psychoneuroimmunological treatment interventions of PNI because the PNI treatment teaches them how to cope with psychosocial stressors outside of treatment.

Hypothesis 3cH₁: There is a statistically significant effect found between groups that differ based on the offender having negative companions (procriminal support group) (as measured by LS/CMI scores and evaluating unstandardized regression beta coefficients). When controlling for variable: presence of negative companions of offenders, test scores evidence a statistically significant difference in the effect found between the experimental and control group, establishing strong evidence against the null hypothesis; 3cH₀ is rejected in favor of 3cH₁. There was a significant bivariate correlation between the treatment intervention of PNI and presence of negative companions ($\beta = .77$, $p = .07$) indicating that the presence of companions (of any kind) serves as a mitigating factor for participants' chance of recidivating following treatment ($\beta = .77$, $p = .07$). The effect is that it is a positive one in reducing the risk score of recidivism following treatment. This variable was significant in Table 7 regression model and therefore the hypothesis was partially supported.

However, there was also a significant bivariate correlation between the presence of negative companions and treatment dosage of 18 months, which aggravated, or decreased, the reduction in the participants' chance in recidivating following treatment ($\beta = -1.60$, $p = .05$). This means that while presence of companions may serve as a

mitigating factor for participants' chance of recidivating following treatment, the presence of negative companions weakened the association between treatment and reduced recidivism. That is, offenders who have negative companions while being exposed to PNI treatment, actually have a weaker association to reduced recidivism scores, as compared to offenders who have little or no negative companions while in treatment. This conclusion is based from examination of the same treatment dosage (18 months) in the absence of negative companions ($\beta = 4.06$, $p = .008$). Thus, the combined variables ($\beta = -1.60$, $p = .05$) reflected an association to reduced recidivism, but a weaker association.

It is important to note that the effect of a weaker association to reduced recidivism, because of having negative companions, was expected. Offenders with negative peer support will still benefit from PNI treatment, but do not benefit as greatly as their counterparts who did not have negative peer support. This effect can be expected due to social phenomena such as peer contagion effect, later discussed. It is also important to note that offenders with negative peer support may have greater difficulty benefitting from any treatment intervention, and that the weaker association was not due to PNI treatment specifically.

Chapter 5: Discussion Overview

This chapter reviews the research problem and rationale for the study. It continues with a brief description of the study, a summary of the findings, and presentation of limitations. An interpretation of the findings in relation to extent literature follows. The chapter concludes with recommendations for research and practice.

Review of Statement of Problem and Study Rationale

A review of these colossal costs associated with sex offender treatment and the commonwealth may conclude whether the benefits of sex offender treatment are outweighed by the costly disadvantages. The costs of these “civil commitment” procedures equal \$500 million both annually and nationally for purposes of confinement and treatment of 5,200 sex offenders (Associated Press, 2010). The civil commitment of sex offenders, post-prison sentences, appeared during the 1990’s in 20 states when state funding was abundant. Despite the implementation of these lawful procedures, the expenses began to exceed what legislators imagined for such programs (Associated Press, 2010). A state of financial turmoil now exists for a broad majority of the 20 states spending more on offender treatment than education and healthcare. Despite contentious debates, states that do not follow the civil commitment of sex offenders prioritize treatment to control offender behavior in the absence of psychology. Treatment focused solely on “controlling behavior” reduced treatment efficacy in isolation of psychology. Therefore, by adding psychology to behavioral modification, civil commitments conclusively ensure improved treatment efficacy for protecting the community.

Sex offenders must exercise advanced intellectual functioning necessary for “successfully” manipulating, deceiving, and grooming both victims and victims’ families. Without utilizing an advanced level of intelligence, offenders would offend in view of the public where they risk easily being arrested (Ferrant, 2015). Thus, offenders must draw upon higher-order cognitive functioning to remain undetected and continue abusive and psychologically deviant patterns. The offender must be calculating, premeditative,

attuned to his/her surroundings, and aggress in manners allowing him/her to be “forgiven” by his/her victims. The presence of intelligence (verbal or other) in offenders serves as a marker for higher-order cognitive functioning and subsequently more skilled psychopathy. If severity of sexual deviance is correlated positively to levels of intelligence, the mental health field is implored to use more refined curricula tools to actuate change in the psychological sophistication of human subjects. If risk management programs were to cater to the more deviant, sociopathic, high-risk offender, by way of more comprehensive curricula designed for individuals of higher intelligence, risk of recidivism may be reduced more than the current modus operandi elicits.

Conclusions

With recent literature (Associated Press, 2010; Bancroft et al., 2012; Brown, 2010; Hollin, 2009; Mann, 2009; McCabe, 2005; Muñoz et al., 2008; Puglia, 2005), this researcher’s imploration to use more advanced curricula to meet the treatment needs of higher psychopathic deviancy, may be warranted. It may require notice that advanced curricula need not be advanced in intellectual agency. Rather, advancements may take the form of more careful attention paid to the specific word choices of homework assignments and overall methodology of treatment.

Ultimately, this study revealed treatment to be a mitigating factor in reducing offender risk of recidivism. Specifically, the findings suggested that treatment enhanced the reduction of participant risk of recidivism when participants were concurrently experiencing financial problems, family/marital problems, and influence from negative social support groups. Treatment appeared to be a mitigating factor in the offender’s risk

of recidivism in all cases. The dosage of treatment proved important for participants experiencing financial problems. For participants experiencing financial problems, 18-months of treatment proved more beneficial than 24-months on reducing participants' chance of recidivating following treatment. These results suggest that the longer participants are in treatment, the harder it may be to reduce their risk of recidivating. One explanation for these findings might exist in the self-pay nature of sex offender treatment. Offenders are required to pay out of pocket for their treatment. Thus, offenders who pay for more than 18-months duration of treatment might bear a greater burden of the price for ongoing mandated sex offender therapy. The dosage of treatment also proved important for participants experiencing influence from negative social support groups and 18-months of treatment proved more detrimental in reducing participants' chance of recidivating following treatment. One explanation for these findings might be peer contagion effect. Offenders mandated to sex offender therapy and meeting twice a week with other offenders, might impede their abilities to appropriately receive and respond to treatment interventions. Since sex offenders have the greatest difficulty in acquiring new friendships post sex offense conviction, it may be that associating with other offenders becomes an offender's choice for social support. If this conclusion is accurate, such claims epitomize the need for sharper tools when working with a psychopathic and sexually deviant population.

Limitations

There are multiple limitations with this researcher's initial argument in favor of a more advanced curricula acknowledging a psychopathic demographic of higher

intelligence. One, out of respect to the restraints of this study, this researcher delineated intelligence (emotional or intellectual) as an advancement of higher order cognitive functioning (Puglia, 2005). Still the varying degrees of intelligence needs to be addressed in further research as the literature (Hayes, 2009; Morgan, 2010; Muñoz et al., 2008; Salekin et al., 2004) cannot agree on whether the positive correlation between intelligence and psychopathy includes intelligence defined as wholly or moderately emotional intelligence exclusive of intellectual intelligence. For the boundaries of this study, the agreement of evidence for a positive correlation between intelligence and psychopathy by the research (Hayes, 2009; Morgan, 2010; Muñoz et al., 2008; Salekin et al., 2004) is noteworthy in and of itself.

Secondly, with literature (Hollin, 2009) specifically limited in addressing the outdated and elementary curricula by which sex offender treatment is executed across agencies, this researcher is compelled to draw upon two years of personal experience as a sex offender treatment provider. Such conclusions based on personal experience ultimately render conclusions vulnerable to confirmatory bias. Confirmatory bias is a proclivity to search for or interpret information in a way that confirms one's preconceptions, leading to statistical errors (Hennessy, 2008). By drawing too heavily upon personal experience, the researcher risks interpreting data through means of confirmatory bias. One clinician's multi-level, multi-setting experience of sex offender treatment is limited to the beliefs, values, and fidelity of experience of one individual alone, narrowing his or her views that cannot be generalized in meaningful ways across cultures.

This study's defense for a more advanced curricula to meet the needs of a more intellectually-keen population admittedly would come at the cost of treatment for those sex offenders commonly found who require more rudimentary curricula warranting "7th grade reading level." Many offenders who are severely violent and meet full criteria for psychopathy possess pervasive developmental disabilities (Kumagami, 2009). Advancing the curriculum to meet the needs of the highest psychopathic recidivists would be counterintuitive to the treatment of disabled offenders who have autistic spectrum disorders, organic brain impairment, or neurocognitive disorders. The only reconciliation for such obstacles in treatment may be to separate offenders not according to the well-known offender segregation of offense-specific behavior (e.g., child molesters versus rapists), but rather to separate offenders according to intellectual aptitude. In the absence of seeking further research, such an execution of segregation and treatment methodology remains unbeknownst to this researcher. As a result, further research to confirm or deny the segregation of offenders by intellectual aptitude is both relevant and necessary. If the need for economic efficiency in the treatment of offenders endures, further research attending to the associations between intelligence and psychopathy might produce greater treatment efficacy and more expediently reduce the risk of recidivism. Additionally, although the PE of PNI was correlated with various indices of reduction of risk, the direction of this relationship remains unclear. For instance, the exact sequence of cause and effect, and the separation of direct and indirect effects require future investigations.

A further limitation of this study is its sample size. A sample size not consisting of a greater sample precludes the researcher's capacity to generalize results to a greater

population. For instance, it may be that the treatment of PNI as PE proved effective for our sample of 86 participants but global inferences about this population cannot be made. Further, there was no double blind experiment being utilized, which would have eliminated researcher confirmation bias. In other words, the researcher administering the treatment is also the researcher conducting the study. Thus, confirmation bias or expectation-bias could have influenced participant outcome. Further, the small sample size precluded several of the independent variables from reaching significance. Lastly, another limitation should be noted. The current investigation did not utilize a random sample of treatment providers and a random sample of probationers. Thus, the current findings may not generalize to the larger population of offenders.

The strengths of this study, such as the implementation of PE, an often-overlooked task of psychiatric rehabilitation, espouse an intervention of least restriction (non-pharmacological psychotherapy) for an underserved and commonly stigmatized population. In one sentence, Barron et al. (2002) summarizes the importance of an educational intervention for group treatment of sex offenders: “Some offending is undoubtedly accounted for by unsophisticated attempts to establish a sexual relationship, and therefore, educational interventions and training might be expected to yield significant results for this group” (p. 457) Cognitive behavioral therapy becomes a premiere intervention for reducing recidivism because CBT involves PE. The importance of sex education on treatment results with sex offenders is seldom highlighted in sex offender treatment groups (Bremble & Rose, 1990; Charman & Clare, 1992; Griffiths et al., 1985, 1989; Swanson & Garwick, 1990). The current study attempts to reify this

intervention as supreme.

The strength of this study, such as the inclusion of key covariates as predictor variables, provided new information on the relationship between variables. Thus, when and where the treatment intervention of PNI did not show significant effect, the relationship among variables enlightened readers as to how treatment efficacy could be enhanced in court-mandated treatment. Further, the strengths of the study, such as the inclusion of PNI as a predictor variable, non-existent in the curricula, provide a vehicle for understanding protective and predictive factors in a somewhat neglected population. Several qualities were identified in this investigation and have clear implications for research and practice.

Recommendations for Research

The current investigation revealed that PNI as a treatment intervention was associated with a decrease in risk of recidivism scores. While changes in the LS/CMI are not changes in the likelihood of recidivism, changes in the LS/CMI ratings through treatment are associated with decreased recidivism. Thus, implementing PNI as a treatment intervention will likely be more effective than psychoeducation as usual, in decreasing LS/CMI ratings associated with recidivism.

Although PNI treatment was correlated with a decrease in recidivism scores, the direction of this relationship remains unclear. It may be the case that other factors prompted treatment adherence and treatment efficacy, and thus influenced a reduction of recidivism scores. For instance, the intervention may have affected more typical psychological constructs such as decreased stress, anxiety, or therapeutic alliance, as

opposed to the variables associated with the PNI construct. The exact sequence of cause and effect, and the separation of direct and indirect effects will require further investigation in future research.

The limitations previously addressed in the research design may have also had undue influence on the outcomes. Examining other factors that PNI impacts or implementing a different research design may lead to greater understanding to help treat clients effectively. Future studies should investigate the association between psychoeducation, PNI and reduction of recidivism scores in greater depth. It is feasible that participants would respond uniquely to the type of treatment provider executing PNI treatment. Subsequent analyses will also need to be conducted on larger sample sizes in order to reduce the problem of Type II errors (“10 Things You Need”, 2016). Potential problems for lack of blinding, as well as the need to standardize such PNI treatment constructs, should also be addressed in future research.

Recommendations for Practice

The results of this study are accordant with the idea that the relationship between intelligence and recidivism is generally indirect. If the goal of sex offender treatment is to reduce the likelihood of risk of recidivism, then it is essential that offender intelligence be considered and addressed in treatment attempts. A more progressive treatment intervention and advanced curriculum to sex offender treatment is clearly warranted. Advancements made in the treatment of sex offenders, such as PNI treatment, would enhance treatment efficacy by dictating a stronger association to a decrease in recidivism scores.

Many treatment programs for offenders have already been implementing evidence-based practices in their treatment of sexual offenders (Barron et al., 2002; Bäuml et al., 2006; Butler et al., 2006; Lindsay et al., 1992; Wood et al., 2000). How and where to implement more evidenced-based treatment interventions in sex offender treatment, should be routinely considered in order to maximize treatment and reduce costs. The most distinct directive from the current study is the need to change sex offender treatment in order to accommodate varying degrees of psychopathy. In conclusion, ethical standards of practice mandate treatment providers to “do no harm”. On these lines, treatment providers are ethically required to shift treatment interventions as new research disproves outdated models of treatment.

References

- 10 Things You Need to Know About Statistical Power | Egap. (n.d.). Retrieved May 26, 2016, from <http://egap.org/methods-guides/10-things-you-need-know-about-statistical-power>
- Abutarbush, S. M. (2008). Saunders Comprehensive Veterinary Dictionary. *The Canadian Veterinary Journal*, 49(9), 906.
- Ader R., Felten, D. E. L., Cohen N. eds. (1991). *Psychoneuroimmunology, 2nd ed.* San Diego, California: Academic Press.
- Ader, R., & Kelley, K. W. (2007). A global view of twenty years of Brain, Behavior, and Immunity. *Brain, Behavior, and Immunity*, 21(1), 20.
- Adler, A. D., Conklin, L. R., & Strunk, D. R. (2013). Quality of coping skills predicts depressive symptom reactivity over repeated stressors. *Journal of Clinical Psychology*, 69(12), 1228.
- Aho-Mustonen K, Miettinen R, Rätty H, Timonen T (2009) Experienced long-term benefits of group psychoeducation among forensic and challenging non-forensic patients with schizophrenia. *International Journal of Psychosocial Rehabilitation* 14(1): 51–63.
- Aho-Mustonen, K., Tiihonen, J., Repo-Tiihonen, E., Ryyänen, O. P., Miettinen, R., & Rätty, H. (2011). Group psychoeducation for long-term offender patients with schizophrenia: An exploratory randomised controlled trial. *Criminal Behaviour and Mental Health*, 21(3), 163-176.
- Alexander, R., Jr. (2004). The United States supreme court and the civil commitment of sex offenders. *The Prison Journal*, 84(3), 361-378.
- Ali, F., Amorim, I. S., & Chamorro-Premuzic, T. (2009). Empathy deficits and trait emotional intelligence in psychopathy and Machiavellianism. *Personality and Individual Differences*, 47(7), 758-762.
- Amazue, L., & Onyishi, I. (2016). Stress Coping Strategies, Perceived Organizational Support and Marital Status as Predictors of Work-Life Balance among Nigerian Bank Employees. *Social Indicators Research*, 128(1), 147-159. doi:10.1007/s11205-015-1023-5
- Andrei, A. M., Fraguas, R., Jr., Telles, R. M., Alves, T. C., Strunz, C. M., & Nussbacher, A. (2007). Major depressive disorder and inflammatory markers in elderly patients with heart failure. *Psychosomatics*, 48, 319-324.

- Andrews, D. A., & Bonta, J. (1994). *The Psychology of Criminal Conduct*. Cincinnati, Ohio: Anderson Publishing.
- Andrews, D. A., & Bonta, J. (2000). *The level of service inventory-revised*. Toronto, Canada: Multi-Health Systems.
- Andrews, D. A., & Bonta, J. (1995). *The level of service inventory— Revised*. Toronto, ON: Multi-Health Systems.
- Andrews, D. A., Bonta, J., & Hoge, R. D. (1990). Classification for effective rehabilitation: Rediscovering psychology. *Criminal Justice and Behavior*, 17, 19-52.
- Andrews, D. A., Bonta, J., & Wormith, S. J. (2006). The recent past and near future of risk and/or need assessment. *Crime & Delinquency*, 52, 7–27.
doi:10.1177/0011128705281756
- Andrews, D. A., Bonta, J., & Wormith, S. J. (2004). *The Level of Service/Case Management Inventory (LS/CMI)*. Toronto, Canada: Multi-Health Systems.
- Andrews, D. A., Dowden, C., & Rettinger, J. L. (2001). Special populations within corrections. *Corrections in Canada: Social Reactions to Crime*, 170-212.
- Associated Press (2010). \$175,000 per offender? Get-tough sex predator ‘treatment’ busts state budgets. Available at: http://www.cleveland.com/nation/index.ssf/2010/06/175000_per_offender_get-tough.html (accessed June 2015)
- Associated Press (Producer). (2002). RR0210/B USA: Sex Offenders [Streaming video]. Retrieved from Associated Press Video Collection database.
- Steinberg, E. P., & Schwartz, G. E. (1976). Biofeedback and electrodermal self-regulation in psychopathy. *Journal of Abnormal Psychology*, 85(4), 408.
- Baird, C. (2009). *A question of evidence: A critique of risk assessment models used in the justice system*. Madison, WI: National Council on Crime and Delinquency.
- Balogh R., Bretherton K., Whibley S., Berney T., Graham S., Richold P., Worsley C. & Firth H. (2001) Sexual abuse in chil-dren and adolescents with intellectual disability. *Journal of Intellectual Disability Research*, 45, 194–201.
- Bancroft, L., Silverman, J. G., & Ritchie, D. (2012). *The batterer as parent: addressing the impact of domestic violence on family dynamics* (2nd ed.). Thousand Oaks, CA: Sage.

- Bannigan, K., & Watson, R. (2009). Reliability and validity in a nutshell. *Journal of Clinical Nursing, 18*(23), 3237-3243.
- Barbaree, H. E., & Marshall, W. L. (1998). Treatment of the sexual offender. *Treatment of offenders with mental disorders, 265-328*.
- Barrett, L. F. (2006). Valence is a basic building block of emotional life. *Journal of Research in Personality, 40*(1), 35-55.
- Barron, P., Hassiotis, A., & Banes, J. (2002). Offenders with intellectual disability: the size of the problem and therapeutic outcomes. *Journal of Intellectual Disability Research, 46*(6), 454-463.
- Bate, C., Boduszek, D., Dhingra, K., & Bale, C. (2014). Psychopathy, intelligence and emotional responding in a non-forensic sample: an experimental investigation. *The Journal of Forensic Psychiatry & Psychology, 25*(5), 600-612.
- Bäumli, J., Froböse, T., Kraemer, S., Rentrop, M., & Pitschel-Walz, G. (2006). Psychoeducation: a basic psychotherapeutic intervention for patients with schizophrenia and their families. *Schizophrenia bulletin, 32*(suppl 1), S1-S9.
- Beech, A. R., Fisher, D. D., & Thornton, D. (2003). Risk assessment of sex offenders. *Professional Psychology: Research and Practice, 34*(4), 339.
- Beggs, S. M., & Grace, R. C. (2008). Psychopathy, intelligence, and recidivism in child molesters evidence of an interaction effect. *Criminal Justice and Behavior, 35*(6), 683-695.
- Benight, C. (2012). Understanding human adaptation to traumatic stress exposure: Beyond the medical model. *Psychological Trauma: Theory, research, practice, and policy, 4*(1), 1-8.
- Benjamin, C. L., Puleo, C. M., Settapani, C. A., Brodman, D. M., Edmunds, J. M., Cummings, C. M., & Kendall, P. C. (2011). History of cognitive-behavioral therapy in youth. *Child and adolescent psychiatric clinics of North America, 20*(2), 179-189.
- Berry, W. D., & Feldman, S. (1985). *Multiple regression in practice: Quantitative applications in the social sciences series, No. 50*, Beverly Hills CA: Sage.
- Bickley, J. A., & Beech, R. (2002). An empirical investigation of the Ward & Hudson self-regulation model of the sexual offence process with child abusers. *Journal of Interpersonal Violence, 17*, 371-393.

- Bickley, J. A., & Beech, R. (2003). Implications for treatment of sexual offenders of the Ward and Hudson model of relapse. *Sexual Abuse: A Journal of Research and Treatment*, 15(2), 121-134.
- Black D. S., Slavich, G. M. 2016. Mindfulness meditation and the immune system: a systematic review of randomized controlled trials. *Ann. N. Y. Acad. Sci.* (2016):1–12.
- Blair, R.J.R., Peschardt, K.S., Budhani, S., Mitchell, D.G.V., & Pine, D.S. (2006). The development of psychopathy. *Journal of Child Psychology and Psychiatry*, 47, 262–275.
- Bonta, J., Law, M., & Hanson, R. K. (1998). The prediction of criminal and violent recidivism among mentally disordered offenders: A meta-analysis. *Psychological Bulletin*, 123, 123–142. doi:10.1037/0033-2909
- Bonta, J., & Motiuk, L. L. (1990). Classification to halfway houses: A quasi-experimental evaluation. *Criminology*, 28, 497-506.
- Bonta, J., & Motiuk, L. L. (1992). Inmate classification. *Journal of Criminal Justice*, 20, 343-353.
- Brace, N., Kemp, R., Snelgar, R., & Lee, J. (2006). *SPSS for psychologist: A guide to data analysis using SPSS for windows*. Hampshire: Macmillan Publishers Limited.
- Bremble A. & Rose J. (1999) Psychological intervention for adults with learning disabilities accused of sexual offending. *Clinical Psychology Forum*, 131, 25-30.
- Bridges, M., Wilson, J. & Gacono, C. (1998). A Rorschach investigation of defensiveness, self perception, interpersonal relations and affective states in incarcerated paedophiles. *Journal of Personality Assessment*, 70, 365-385.
- Brooks-Holliday, S. R. (2012). Examining improvements in criminogenic needs: The risk reduction potential of a structured re-entry program examining improvements in criminogenic needs: The risk reduction potential of a structured re-entry program. *Behavioral Sciences & the Law*, 30(4), 431-447.
- Brown, S. J. (2010). 'An Introduction to sex offender treatment programmes and their risk reduction efficacy' in Harrison, K. (Ed). *Managing high-risk sex-offenders in the community*. Cullompton, Devon: Willan.
- Brown, S. & Forth, A. (1997). Psychopathy and sexual assault: static risk factors,

emotional precursors and rapist subtypes. *Journal of Consulting and Clinical Psychology*, 65, 848-857.

Bumby, K. & Hansen, D. (1997). Intimacy deficits, fear of intimacy and loneliness among sexual offenders. *Criminal Justice and Behaviour*, 24, 315-331.

Butler, A. C., Chapman, J. E., Forman, E. M., & Beck, A. T. (2006). The empirical status of cognitive-behavioral therapy: a review of meta-analyses. *Clinical Psychology Review*, 26(1), 17-31.

California Sex Offender Management Task Force Report. (2007 July). Retrieved from <http://www.casomb.org/index.cfm>

California Sex Offender Management Board: Program Certification or Re-Certification Application. (2015, September 1). Retrieved from <http://www.casomb.org/index.cfm?pid=232>

Charman T. & Clare I. (1992) Education about the laws social rules relating to sexual behaviour. An education group for male sexual offenders with mild mental handicaps. *Mental Handicap*, 20, 74-80.

Cheung, M., & Brandes, B. J. (2011). Enhancing treatment outcomes for male adolescents with sexual behavior problems: Interactions and interventions. *Journal of Family Violence*, 26(5), 387-401.

Christian, L. M. (2012). Psychoneuroimmunology in pregnancy: Immune pathways linking stress with maternal health, adverse birth outcomes, and fetal development. *Neuroscience And Biobehavioral Reviews*, 36(1), 350-361. doi:10.1016/j.neubiorev.2011.07.005

Christian LM, Graham JE, Padgett DA, Glaser R, Kiecolt-Glaser JK. Stress and wound healing. *Neuroimmunomodulation* 2006;13:337–346.

Civil Commitment Process of Community Sex Offenders. (2016, March). Retrieved from <http://www.doc.wa.gov/community/sexoffenders/civilcommitment.asp>

Cleckley H. (1941). *The mask of sanity*. St. Louis, MO: Mosby.

Cleckley H. M. (1976). *The Mask of Sanity, 5th edn*. St. Louis, MO: Mosby.

Cleckley, H. M. (1982). *The mask of sanity*. St. Louis, MO: New American Library.

Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (1983). *Multiple regression/correlation*

analysis for the behavioral sciences. Hillsdale, NJ: Earlbaum.

- Cohen, J., Cohen, P., West, S. G., & Aiken, L. S. (2003). *Applied multiple correlation/regression analysis for the behavioral sciences*. UK: Taylor & Francis.
- Cohen, S., Doyle, W. J., Turner, R. B., Alper, C. M., & Skoner, D. P. (2003). Emotional style and susceptibility to the common cold. *Psychosomatic Medicine*, *65*, 652–657.
- Cohen, S., Frank, E., Doyle, W. J., Skoner, D. P., Rabin, B. S., & Gwaltney, J. M. (1998). Types of stressors that increase susceptibility to the common cold in healthy adults. *Health Psychology*, *17*, 214–23.
- Cowburn, M. (2015). The Wiley-Blackwell Handbook of Legal and Ethical Aspects of Sex Offender Treatment and Management. *Howard Journal of Criminal Justice*, *54*(1), 97-98. doi:10.1111/hojo.12106
- Dantzer, R., Capuron, L., Irwin, M. R., Miller, A. H., Ollat, H., Hugh Perry, V., & ... Yirmiya, R. (2008). Identification and treatment of symptoms associated with inflammation in medically ill patients. *Psychoneuroendocrinology*, *33*(1), 18-29. doi:10.1016/j.psyneuen.2007.10.008
- Dantzer, R., & Kelley, K. W. (2007). Twenty years of research on cytokine-induced sickness behavior. *Brain, Behavior, and Immunity*, *21*(2), 153-160.
- Day, A. (2013). The supervision of known sex offenders in the community: monitoring progress and providing feedback. *Sexual Offender Treatment*, *8*(2), 1-9.
- Day, K. (1994). Male mentally handicapped sex offenders. *The British Journal of Psychiatry*, *165*(5), 630-639.
- DeLisi, M., Vaughn, M. G., Beaver, K. M., & Wright, J. P. (2010). The Hannibal Lecter Myth: Psychopathy and Verbal Intelligence in the MacArthur Violence Risk Assessment Study. *Journal of Psychopathology & Behavioral Assessment*, *32*(2), 169-177. doi:10.1007/s10862-009-9147-z
- Detillion, C. E., Craft, T. K., Glasper, E. R., Prendergast, B. J., & DeVries, A. C. (2004). Social facilitation of wound healing. *Psychoneuroendocrinology*, *29*(8), 1004-1011.
- Doll, R. (2001). Cohort studies: History of the method II. Retrospective cohort studies. *Sozial-und Präventivmedizin*, *46*(3), 152-160.

- Eccles, A., & Marshall, W. L. (1999). Relapse prevention. In W. L. Marshall & Y. M. Fernandez (Eds.), *Cognitive-behavioral treatment of sexual offenders* (pp. 127–146). Chichester, England: Wiley.
- Elsenbruch, S., Langhorst, J., Popkirowa, K., Müller, T., Luedtke, R., Franken, U., ... & Schedlowski, M. (2005). Effects of mind-body therapy on quality of life and neuroendocrine and cellular immune functions in patients with ulcerative colitis. *Psychotherapy and Psychosomatics*, 74(5), 277-287.
- Fanniff, A. M., Otto, R. K., & Petrila, J. (2010). Competence to Proceed in SVP Commitment Hearings: Irrelevant or Fundamental Due Process Right?. *Behavioral Sciences & the Law*, 28(5), 647-670.
- Farrington, D. P. (2000). Psychosocial predictors of adult antisocial personality and adult convictions. *Behavioral Sciences and the Law*, 18, 605–622.
- Farrington, D. P. (2006). Family background and psychopathy. In C. J. Patrick (Ed.), *Handbook of psychopathy*. New York, NY: Guilford Press.
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G* Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior research methods*, 39(2), 175-191.
- Ferrant, S. (2015). Communications with Susan L. Ferrant, Ph.D. in *PSC 714 Family Violence coursework*. Antioch University Santa Barbara.
- Field, A. P. (2013). *Discovering statistics using IBM SPSS Statistics: And sex and drugs and rock 'n' roll (4th ed.)*. London, UK: Sage.
- Fisher, D., Beech, A. & Browne, K. (1999). Comparison of sex offenders to nonoffenders on selected psychological measures. *International Journal of Offender Therapy and Comparative Criminology*, 43, 473-491.
- Flores, A. W., Lowenkamp, C. T., Holsinger, A. M., & Latessa, E. J. (2006). Predicting outcome with the Level of Service Inventory-Revised: The importance of implementation integrity. *Journal of Criminal Justice*, 34(5), 523-529.
- Frank, J. D. (1989). *Non-specific aspects of treatment: The view of the psychotherapist*. In M. Shepherd & N. Satorius (Eds.), *Non-specific aspects of treatment* (pp. 95-114). Toronto, Canada: Hans Huber.
- Frank, J. D., & Frank, J. B. (1991). *Persuasion and healing*. Baltimore, MD: Johns Hopkins University Press.

- Freedman, D. (2001). False prediction of future dangerousness: Error rates and Psychopathy Checklist—Revised. *Journal of The American Academy Of Psychiatry And The Law*, 29(1), 89-95.
- Frick, P.J., & Marsee, M.A. (2006). *Psychopathy and developmental pathways to antisocial behavior in youth*. In C.J. Patrick (Ed.), *Handbook of psychopathy* (pp. 355–374). New York: Guilford.
- Frijda, N. H. (1986). *The Emoticons*. Cambridge, UK: Cambridge University Press.
- Furby, L., Weinrott, M., & Blackshaw, L. (1989). Sex offender recidivism: A review. *Psychological Bulletin*, 105(1), 3-30.
- Gallo, L. C., Ghaed, S. G., & Bracken, W. S. (2004). Emotions and cognitions in coronary heart disease: Risk, resilience, and social context. *Cognitive Therapy and Research*, 28(5), 669-694.
doi:<http://dx.doi.org.antioch.idm.oclc.org/10.1023/B:COTR.0000045571.11566.19>
- Gannon, T.A. (2009). Social cognition in violent and sexual offending: An overview. *Psychology Crime & Law*, 15, 97-118.
- Gendreau, P., Little, T., & Goggin, C. (1996). A meta-analysis of the predictors of adult offender recidivism: What works!. *Criminology*, 34(4), 575-608.
- Gierloff, M. (2012). Positive emotions and immune response to influenza in medically stable older adults (Order No. 3509521). Available from Psychology Database. (1020578657). Retrieved from <http://search.proquest.com.antioch.idm.oclc.org/docview/1020578657?accountid=26438>
- Girard, L., & Wormith, J. (2004). The predictive validity of the Level of Service Inventory—Ontario Revision on general and violent recidivism among various offender groups. *Criminal Justice and Behavior*, 31, 150–181.
doi:10.1177/0093854803261335
- Glaser, R., Kiecolt-Glaser, J. K., Bonneau, R. H., Malarkey, W., Kennedy, S., & Hughes, J. (1992). Stress-induced modulation of the immune response to recombinant hepatitis B vaccine. *Psychosom. Med.*, 54, 22–29.
- Glaser, R., Sheridan, J.F., Malarkey, W.B., MacCallum, R.C., & Kiecolt-Glaser, J.K., (2000). Chronic stress modulates the immune response to a pneumococcal vaccine. *Psychosom. Med.*, 62, 804–7.

- Gouin, J. P., Hantsoo, L., & Kiecolt-Glaser, J. K. (2008). Immune dysregulation and chronic stress among older adults: a review. *Neuroimmunomodulation*, 15(4-6), 251-259.
- Gray, C. D., & Kinnear, P. R. (2012). *IBM SPSS statistics 19 made simple*. Psychology Press.
- Griffiths D. M., Hingsburger D. & Christain R. (1985). Treating developmentally handicapped sexual offenders: the New York Management Services Treatment Program. *Psychiatric Aspects of Mental Retardation Reviews*, 4, 49-52.
- Griffiths D. M., Quinsey V. L. & Hingsburger D. (1989) Changing inappropriate sexual Behaviour: A Community Based Approach for Persons with Developmental Disabilities. Paul H . *Brookes Publishing*, Baltimore, MD.
- Guay, J.-P., Ouimet, M., & Proulx, J. (2005). On intelligence and crime: A comparison of incarcerated sex offenders and serious non-sexual violent criminals. *International Journal of Law and Psychiatry*, 28, 405-417.
- Hackett, S. (2005). Editorial. *Journal of Sexual Aggression*. 11, pp. 233-234.
- Hall, G. C. N. (1995). The preliminary development of theory-based community treatment for sexual offenders. *Professional Psychology: Research and Practice*, 26(5), 478.
- Hanson, R. K. (1996). Evaluating the Contribution of Relapse Prevention Theory to the Treatment of Sexual Offenders¹. *Sexual Abuse: A Journal of Research and Treatment*, 8(3), 201-208.
- Hanson, R. K., & Thornton, D. (1999). *Static 99: Improving actuarial risk assessments for sex offenders (Vol. 2)*. Ottawa, Canada: Solicitor General Canada.
- Hare, R. D. (1980). A research scale for the assessment of psychopathy in criminal populations. *Personality and Individual Differences*, 1, 111-119.
- Hare, R. D. (1991). *The Hare psychopathy checklist—revised*. Toronto, ON: Multi-Health Systems.
- Hare, R. D. (2003). *The Hare psychopathy checklist—revised (2nd ed.)*. Toronto, ON: Multi-Health Systems.
- Hare, R. D., Harpur, T. J., Hakstian, A. R., Forth, A. E., Hart, S. D., & Newman, J. P. (1990). The revised Psychopathy Checklist: Reliability and factor structure. *Psychological Assessment: A Journal of Consulting and Clinical Psychology*,

2(3), 338.

- Harpur, T. J., Hare, R. D., & Hakstian, A. R. (1989). Two-factor conceptualization of psychopathy: Construct validity and assessment implications. *Psychological Assessment: A Journal of consulting and clinical Psychology*, 1(1), 6.
- Harpur, T. J., Hart, S. D., & Hare, R. D. (2002). *Personality of the psychopath*. In P. T. Costa & T. A. Widiger (Eds.), *Personality disorders and the five-factor model of personality* (2nd ed., pp. 299–324). Washington, DC: American Psychological Association.
- Harris, A. J., Levenson, J. S., & Ackerman, A. R. (2014). Registered Sex Offenders in the United States: Behind the Numbers. *Crime & Delinquency*, 60(1), 3-33.
doi:10.1177/0011128712443179
- Harris, G. T., Rice, M. E., & Cormier, C. A. (1991). Psychopathy and violent recidivism. *Law and human behavior*, 15(6), 625.
- Harris, G. T., Rice, M. E., & Lalumière, M. (2001). Criminal Violence The Roles of Psychopathy, Neurodevelopmental Insults, and Antisocial Parenting. *Criminal justice and behavior*, 28(4), 402-426.
- Hayes, S. (2002, June). *Adaptive behaviour and background characteristics of sex offenders with intellectual disabilities*. In International Association for the Scientific Study of Intellectual Disabilities, Inaugural Conference of IASSID Europe, University College Dublin.
- Hayes, S. (2009). The relationship between childhood abuse, psychological symptoms and subsequent sex offending. *Journal of Applied Research In Intellectual Disabilities*, 22(1), 96-101.
- Heilbrun, A. B. (1979). Psychopathy and violent crime. *Journal of Consulting and Clinical Psychology*, 47, 509-516.
- Hennessy, M. D. (2008). Confirming preferences or collecting data? Information search strategies and romantic partner selection. *Psychology, Health & Medicine*, 13(2), 202-221.
- Herba, C. M., Hodgins, S., Blackwood, N., Kumari, V., Naudts, K. H., & Phillips, M. (2007). *The neurobiology of psychopathy: A focus on emotion processing*. In H. Herve & J. Yuille (Eds.), *Psychopathy: Theory, Research and Social Implications* (pp. 251–283). Mahwah, NJ: Lawrence Erlbaum.
- Hirschi, T., & Hindelang, M. J. (1977). Intelligence and delinquency: A revisionist

- review. *American Sociological Review*, 571-587.
- Holland, T. R., Beckett, G. E., & Levi, M. (1981). Intelligence, personality, and criminal violence: A multivariate analysis. *Journal of Consulting And Clinical Psychology*, 49(1), 106-111. doi:10.1037/0022-006X.49.1.106
- Hollin, C. R. (2009). Treatment manuals: The good, the bad and the useful. *Journal of Sexual Aggression*, 15(2), 133-137.
- Holtfreter, K., Reisig, M. D., & Morash, M. (2004). Poverty, state capital, and recidivism among women offenders. *Criminology and Public Policy*, 3, 185-209.
- Howard, C. J. (2013). *Communications with Dr. Christopher Howard in Psychobiology and Psychopharmacology Coursework*. Antioch University Santa Barbara.
- Hudson, S. M., Ward, T., & McCormack, J. C. (1999). Offense pathways in sexual offenders. *Journal of Interpersonal Violence*, 14(8), 779-798.
- Ingram, R. E., Kendall, P. C., & Chen, A. H. (1991). Cognitive-behavioral interventions. In C. R. Snyder & D. R. Forsyth (Eds.), *Handbook of social and clinical psychology* (pp. 509-522). New York: Pergamon.
- Introduction to SAS. UCLA: Statistical Consulting Group.
from <http://www.ats.ucla.edu/stat/sas/notes2/> (accessed April 22, 2016).
- Irwin, M., Clark, C., Kennedy, B., Gillin, J. C., & Ziegler, M. (2003). Nocturnal catecholamines and immune function in insomniacs, depressed patients, and control subjects. *Brain Behavior, & Immunity*, 17, 365– 372.
- Iverson J. C. & Fox R. A. (1989) Prevalence of psychopathology among mentally retarded adults. *Research in Developmental Disabilities*, 10, 77-83.
- Jennings L, Harris B, Gregoire J, Merrin J, Peyton J, Bray L (2002) The effect of a psychoeducational programme on knowledge of illness, insight and attitudes towards medication. *The British Journal of Forensic Practice*, 4: 3–10.
- Jessop, D. (1998). Evidence for mind-body connection increases. *The Lancet*, 351(9110), 1185.
- Johansson, P., & Kerr, M. (2005). Psychopathy and intelligence: A second look. *Journal of Personality Disorders*, 19(4), 357-69.
- Kendall, P. C., & Hollon, S. D. (Eds.). (2013). *Cognitive-behavioral interventions: Theory, research, and procedures (Vol. 21)*. New York: Academic Press.

- Kendall-Tackett, K. (2010). *Depression, hostility, posttraumatic stress disorder, and inflammation: The corrosive health effects of negative mental states*. In K. Kendall-Tackett (Ed.), *The Psychoneuroimmunology of Chronic Disease* (pp. 113-132). Washington, D.C.: American Psychological Association.
- Kiecolt-Glaser, J. K., Glaser, R., Gravenstein, S., Malarkey, W. B., & Sheridan, J., (1996). Chronic stress alters the immune response to influenza virus vaccine in older adults. *Proc. Natl. Acad. Sci. USA*, *93*, 3043-47.
- Kiecolt-Glaser, J. (2002). Emotions, Morbidity, and Mortality: New Perspectives from Psychoneuroimmunology. *Annual Review of Psychology*, *53*(1), 83.
- Kiecolt-Glaser, J. K., McGuire, L., Robles, T. F., & Glaser, R. (2002a). Psychoneuroimmunology and psychosomatic medicine: back to the future. *Psychosomatic medicine*, *64*(1), 15-28.
- Kiecolt-Glaser, J., McGuire, L., Robles, T. F., & Glaser, R. (2002b). Emotions, morbidity, and mortality: New perspectives from psychoneuroimmunology. *Annual Review of Psychology*, *53*, 83-107.
- Kilbourn, K., Anderson, D., Costenaro, A., Luszczakoski, K., Borrayo, E., & Raben, D. (2013). Feasibility of EASE: a psychosocial program to improve symptom management in head and neck cancer patients. *Supportive Care in Cancer*, *21*(1), 191-200. doi:10.1007/s00520-012-1510-z
- King, C. A. (1998). Fighting the devil we don't know: Kansas v. Hendricks, a case study exploring the civilization of criminal punishment and its ineffectiveness in preventing child sexual abuse. *Wm. & Mary L. Rev.*, *40*, 1427.
- Kingston, D. A., Yates, P. M., & Firestone, P. (2012). The self-regulation model of sexual offender treatment: Relationship to risk and need. *Law and Human Behavior*, *36*, 215-224.
- Koenig, H. G., & Cohen, H. J. (Eds.). (2002). *The link between religion and health: Psychoneuroimmunology and the faith factor*. Oxford, England: Oxford University Press.
- Korb, K. (2012). Conducting Educational Research. Validity of Instruments. Retrieved from <http://korbedpsych.com/R09eValidity.html>
- Kumagami, T. N. (2009). Prevalence of pervasive developmental disorder in juvenile court cases in Japan. *Journal of Forensic Psychiatry & Psychology*, *20*(6), 974-987.

- Lamb, T. (2005). The retrospective pretest: An imperfect but useful tool. *The Evaluation Exchange*, 11(2), 18-19.
- Laws, D. (1989). *Relapse prevention with sex offenders*. Guilford Press.
- Laws, D. R., & Marshall, W. L. (2003). A brief history of behavioral and cognitive behavioral approaches to sexual offenders: Part 1. Early developments. *Sexual Abuse: A Journal of Research and Treatment*, 15(2), 75-92.
- Laws, D. R., & Ward, T. (2006). When one size doesn't fit all: The reformulation of relapse prevention. *Sexual offender treatment: Controversial issues*, 241-254.
- Leon, C., Burton, D. L., & Alvare, D. (2011). Net-widening in Delaware: The overuse of registration and residential treatment for youth who commit sex offenses. *Widener L. Rev.*, 17, 127.
- Leonard, B., & Myint, A. (2009). The psychoneuroimmunology of depression. *Human Psychopharmacology: Clinical & Experimental*, 24(3), 165-175.
- Levenson, J. S., & D'Amora, D. A. (2007). Social Policies Designed to Prevent Sexual Violence The Emperor's New Clothes?. *Criminal Justice Policy Review*, 18(2), 168-199.
- Levin, J. (2010). Religion and mental health: Theory and research. *International Journal of Applied Psychoanalytic Studies*, 7(2), 102-115.
- Lewis C. E., O'Sullivan, C., & Barraclough J. (1994). *The Psychoimmunology of Cancer*. Oxford: Oxford University Press.
- Lindsay W., Law J., Quinn K., Smart N. & Smith A. (2001) A comparison of physical and sexual abuse: histories of sexual and non-sexual offenders with intellectual disability. *Child Abuse and Neglect* 25, 989–995.
- Lisak, D. & Ivan, C. (1995). Deficits in intimacy and empathy in sexually aggressive men. *Journal of Interpersonal Violence*, 10, 296-308.
- Loney, B. R., Frick, P. J., Ellis, M., & McCoy, M. G. (1998). Intelligence, callous-unemotional traits, and antisocial behavior. *Journal of Psychopathology and Behavioral Assessment*, 20, 231–247.
- LSCMI (Level of Service/Case Management Inventory – Instrument Used to Assess Risk of Violent Reoffending). (2016, March). Retrieved from <http://www.saratso.org/index.cfm?pid=467>

- Lund J. (1985) The prevalence of psychiatric morbidity in mentally retarded adults. *Acta Psychiatrica Scandinavica*, 72, 563-570.
- Maier, M. A. (2012). A Triadic Relationship Therapy and its Website Model: Impacts on Theory and Practice. Part I: Contextual Essay. Part II: The Social Action Project Website (Doctoral dissertation, Union Institute and University).
- Malamuth, N. & Brown, L. (1994). Sexually aggressive men's perceptions of women's communications: testing three explanations. *Journal of Personality and Social Psychology*, 67, 699-712.
- Mann, R. E. (2009). Sex offender treatment: The case for manualization. *Journal of Sexual Aggression*, 15(2), 121-131.
- Mann, R.E., & Beech, A.R. (2003). Cognitive distortions, schemas, and implicit theories. In T. Ward, D.R. Laws, & S.M. Hudson (Eds.), *Sexual Deviance: Issues and Controversies*. Thousand Oaks, CA: Sage.
- Marlatt, G. A., & Parks, G. A. (1982). Self-management of addictive behaviors. *Self-management and behavior change*, 443-488.
- Marques, J. K. (1988). The sex offender treatment and evaluation project: California's new outcome study. *Annals of the New York Academy of Sciences*, 528(1), 235-243.
- Marques, J. K., Day, D. M., Nelson, C., & Miner, M. H. (1989). *The Sex Offender Treatment and Evaluation Project: California's relapse prevention program*. In D. R. Laws (Ed.), *Relapse prevention with sex offenders* (pp. 247-267). New York: Guilford Press.
- Marques, J. K., Day, D. M., Nelson, C., & West, M. A. (1993). Findings and recommendations from California's experimental treatment program. *Sexual aggression: Issues in etiology, assessment, and treatment*, 197-214.
- Marques, J. K., Day, D. M., Nelson, C., & West, M. A. (1994). Effects of cognitive-behavioral treatment on sex offender recidivism preliminary results of a longitudinal study. *Criminal Justice and Behavior*, 21(1), 28-54.
- Marques, J. K., Nelson, C., Alarcon, J. M., & Day, D. M. (2000). *Preventing relapse in sex offenders. Remaking relapse prevention with sex offenders. A sourcebook*. Sage, Thousand Oaks, 321-340.
- Marques, J., Nelson, C., West, M. A., & Day, D. M. (1994). The relationship between

treatment goals and recidivism among child molesters. *Behaviour Research and Therapy*, 32(5), 577-588.

- Marshall, W. L., Anderson, D., & Fernandez, Y. M. (1999). *Cognitive Behavioral Treatment of Sexual Offenders*. Chichester, England: Wiley.
- Marshall, W., Hudson, S., Jones, R. & Fernandez, Y. (1995). Empathy in sex offenders. *Clinical Psychology Review*, 15, 99-113.
- Marshall, W. L. & Laws, D. R. (2003). A brief history of behavioral and cognitive behavioral approaches to sexual offender treatment: Part 2. The modern era. *Sexual Abuse: A Journal of Research and Treatment*, 15, 93-120.
- Marshall, W. L., Marshall, L. E., Serran, G., & Fernandez, Y. M. (2006). *Treating Sexual Offenders: An Integrated Approach*. New York, NY: Routledge.
- Marshall, W. L., Ward, T., Mann, R. E., Moulden, H., Fernandez, Y. M., Serran, G., & Marshall, L. E. (2005). Working positively with sexual offenders maximizing the effectiveness of treatment. *Journal of interpersonal violence*, 20(9), 1096-1114.
- Martin, E. K., Taft, C. T., & Resick, P. A. (2007). A review of marital rape. *Aggression and Violent Behavior*, 12(3), 329-347.
- Matthews, K. A., Schott, L. L., Bromberger, J., Cyranowski, J., Everson-Rose, S. A., & Sowers, M. F. (2007). Associations between depressive symptoms and inflammatory/hemostatic markers in women during the menopausal transition. *Psychosomatics Medicine*, 69, 124-130.
- McCabe, M. M. (2005). Behavioural characteristics of rapists. *Journal of Sexual Aggression*, 11(3), 235-247.
- McDonald, D. L. (2004). SMITH V. DOE: JUDICIAL DEFERENCE TOWARDS THE LEGISLATIVE INTENT BEHIND A BROAD, PUNITIVE CIVIL LAW BETRAYS THE CORE PRINCIPLES OF THE EX POST FACTO CLAUSE. *Maryland Law Review*, 63(2), 369-400.
- McElroy S. L., Soutullo C. A., Taylor P., Nelson E. B., Beckman D. A., Brusman L. A., Ombaba J. M., Strakowski S. M. & Keck P. E. (1999) Psychiatric features of 36 men convicted of sexual offences. *Journal of Clinical Psychiatry* 60, 414-420.
- McEwen, B. S. (2006). Protective and damaging effects of stress mediators: central role of the brain. *Dialogues in Clinical Neuroscience*, 8(4), 283-297.
- McKibben, A., Proulx, J. & Lusignan, R. (1994). Relationships between conflict, affect

and deviant sexual behaviour in rapists and paedophiles. *Behaviour Research and Therapy*, 32, 571-575.

- Meier-Ewert, H. K., Ridker, P. M., & Rifai, N. (2004). Effect of sleep loss on C-reactive protein, an inflammatory marker of cardiovascular risk. *J Am Coll Cardiol*, 43(4), 678–683.
- Merinder, L. B. (2000). Patient education in schizophrenia: a review. *Acta Psychiatrica Scandinavica*, 102(2), 98-106.
- Michalak, E. E., Yatham, L. N., & Lam, R. W. (2005). Quality of life in bipolar disorder: a review of the literature. *Health and Quality of Life Outcomes*, 3(1), 1.
- Morag, M., Morag, A., Reichenberg, A., Lerer, B., & Yirmiya, R.. (1999). Psychological variables as predictors of rubella antibody titers and fatigue—a prospective, double blind study. *J. Psychiatr. Res.*, 33, 389–95.
- Morgan, W. E. (2010). Risk assessment with intimate partner sex offenders. *Journal of Sexual Aggression*, 16(3), 361-372.
- Motivala, S. (2011). Sleep and Inflammation: Psychoneuroimmunology in the Context of Cardiovascular Disease. *Annals of Behavioral Medicine*, 42(2), 141-152.
- Muñoz, L. J., Frick, P. J., Kimonis, E. R., Aucoin, K. J. (2008). Verbal ability and delinquency: Testing the moderating role of psychopathic traits. *Journal of Child Psychology & Psychiatry*, 49(4), 414-421.
- National Institute on Ageing (2000). *Higher-order cognitive functioning and ageing*. Available at: <http://grants.nih.gov/grants/guide/pa-files/PA-00-052.html> (accessed June 2015)
- Hare, R. D., & Neumann, C. S. (2008). Psychopathic traits in a large community sample: Links to violence, alcohol use, and intelligence. *Journal of Consulting and Clinical Psychology*, 76, 893–899.
- Nivison, M., Guillozet-Bongaarts, G., & Montine, T. (2010). *Inflammation, fatty acid oxidation, and neurodegenerative disease*. In K. Kendall-Tackett (Ed.), *The Psychoneuroimmunology of Chronic Disease* (pp. 23-52). Washington, D.C.: American Psychological Association.
- O’Keefe, M. L., Klebe, K., & Hromas, D. G. (1998). *Validation of the Level of Supervision Inventory (LSI) for community based offenders in Colorado: Phase 2*. Colorado Springs: Colorado Department of Corrections.

- Olver, M. E., & Wong, S. P. (2006). Psychopathy, Sexual Deviance, and Recidivism Among Sex Offenders. *Sexual Abuse: Journal of Research And Treatment*, 18(1), 65-82. doi:10.1177/107906320601800105
- Ornduff S., Kelsey R. & O’Leary K. (2001) Childhood physical abuse, personality, and adult relationship violence: a model of vulnerability to victimization. *American Journal of Orthopsychiatry* 71, 322–331.
- Osborne, J., & Waters, E. (2002). Four assumptions of multiple regression that researchers should always test. *Practical assessment, research & evaluation*, 8(2), 1-9.
- Overholser, J. & Beck, S. (1986). Multimethod assessment of rapists, child molesters and three control groups on behavioural and psychological measures. *Journal of Consulting and Clinical Psychology*, 54 , 682-687.
- Patrick, C. J. (2006). *Back to the future: Cleckley as a guide to the next generation of psychopathy research*. In C. J. Patrick (Ed.), *Handbook of psychopathy* (pp. 605–617). New York: Guilford Press.
- Pedhazur, E. J., (1997). *Multiple regression in behavioral research: Explanation and prediction. (3rd ed.)*. Orlando, FL: Harcourt Brace College.
- Petrunik, M. (1982). The politics of dangerousness. *International Journal of Law and Psychiatry*, 5(3-4), 225-253. doi:10.1016/0160-2527(82)90021-8
- Pithers, W. D., Marques, J. K., Gibat, C. C., & Marlatt, G. A. (1983). Relapse prevention with sexual aggressives: A self-control model of treatment and maintenance of change. *The sexual aggressor: Current perspectives on treatment*, 214-239.
- Polaschek, D. L. L. (2003). Relapse prevention, offence process models, and the treatment of sexual offenders. *Professional Psychology: Research and Practice*, 34, 361-367.
- Porta, M. (Ed.). (2014). *A dictionary of epidemiology*. Oxford, England: Oxford University Press.
- Prospective vs. Retrospective Studies. (2016, March). Retrieved from <http://www.statsdirect.com/help/basics/prospective.htm>
- Proulx, J., Perreault, C., & Ouimet, M. (1999). Pathways in the offending process of extra-familial sexual child molesters. *Sexual Abuse: A Journal of Research and Treatment*, 11, 117-129.

- Puglia, M. M. (2005). The emotional intelligence of adult sex offenders: Ability based EI assessment. *Journal of Sexual Aggression, 11*(3), 249-258.
- Raison, C. L., Capuron, L., & Miller, A. H. (2006). Cytokines sing the blues: inflammation and the pathogenesis of depression. *Trends in Immunology, 27*(1), 24-31.
- Razurel, C., Kaiser, B., Sellenet, C., & Epiney, M. (2013). Relation between perceived stress, social support, and coping strategies and maternal well-being: a review of the literature. *Women & Health, 53*(1), 74-99.
- Recidivism and National Statistics on Recidivism. (2016, March). Retrieved from <http://www.nij.gov/topics/corrections/recidivism/pages/welcome.aspx>
- Redwine, L.S., Mills, P.J., Hong, S., Rutledge, T., Reis, V., & Maisel, A. (2007). Cardiac-related hospitalization and/or death associated with immune dysregulation and symptoms of depression in heart failure patients. *Psychosomatic Medicine, 69*, 23-29.
- Reiss S. (1990) Prevalence of dual diagnosis in community-based day programs in the Chicago metropolitan area. *American Journal on Mental Retardation, 94*, 578-585.
- Rettinger, J. (1998). *A recidivism follow-up study to investigate risk and need within a sample of provincially sentenced women*. Unpublished doctoral dissertation, Carleton University, Ottawa, Ontario, Canada.
- Reuters, T. (2014). *California Penal Code 2014: With Selected Provisions from Other Codes and Rules of Court: Desktop Edition*: West Group, 2014.
- Rice, M., Chaplin, T., Harris, G. & Coutts, J. (1994). Empathy for the victim and sexual arousal among rapists and non-rapists. *Journal of Interpersonal Violence, 9*, 435-449.
- Rice, M. E., & Harris, G. T. (1995). Violent recidivism: assessing predictive validity. *Journal of Consulting and Clinical Psychology, 63*(5), 737.
- Ryan, T. A., Joiner, B. L., & Ryan, B. F. (1976). *Minitab students handbook*. PWS, Boston, Mass.
- Salekin, R. T., Neumann, C. S., Leistico, A. M. R., & Zalot, A. A. (2004). Psychopathy in youth and intelligence: An investigation of Cleckley's hypothesis. *Journal of Clinical Child and Adolescent Psychology, 33*, 731-742.

- Scully, D. (1988). Convicted rapists' perception of self and victim: role taking and emotions. *Gender and Society*, 2, 200-213.
- Segerstrom, S. C., & Miller, G. E. (2004). Psychological stress and the human immune system: A meta-analytic review study of 30 years of inquiry. *Psychological Bulletin*, 130(4), 601-630.
- Sheeber, L. B., Allen, N. B., Leve, C., Davis, B., Shortt, J. W., & Katz, L. F. (2009). Dynamics of affective experience and behavior in depressed adolescents. *Journal of Child Psychology & Psychiatry*, 50(11), 1419-1427.
- Shuttleworth, M. (2009-11-26). "Repeated Measures Design". Retrieved April 22, 2016 from Experiment-resources.com
- Simons, D. A., McCullar, B., & Tyler, C. (2008). *The utility of the self-regulation model to re-integration planning*. In 27th Annual Association for the Treatment of Sexual Abusers Research and Treatment Conference, Atlanta, GA.
- Simons, D. A., Yates, P. M., Kingston, D. A., & Tyler, C. (2009, October). *Self-regulation Model of Sexual Offending: Treatment Compliance, Motivation, and Progress*. Presented at the 28th Annual Convention of the Association for the Treatment of Sexual Abusers (ATSA), Dallas, TX.
- Spironelli, C., Segrè, D., Stegagno, L., & Angrilli, A. (2014). Intelligence and psychopathy: a correlational study on insane female offenders. *Psychological Medicine*, 44(1), 111-116. doi:10.1017/S0033291713000615
- Stephoe, A., Cropley, M., Griffith, J., & Kirschbaum, C. (2000). Job strain and anger expression predict early morning elevations in salivary cortisol. *Psychosomatic Medicine*, 62(2), 286-292.
- Stone, A. A., Cox, D. S., Valdimarsdottir, H., Jandorf, L., & Neale, J. M. (1987). Evidence that secretory IgA antibody is associated with daily mood. *Journal of Personality and Social Psychology*, 52, 988-993.
- Suarez, E. C., & Goforth, H. (2010). *Sleep and inflammation: A potential link to chronic diseases*. In K. Kendall-Tackett (Ed.), *The Psychoneuroimmunology of Chronic Disease* (pp. 53-75). Washington, D.C.: American Psychological Association.
- Surtees, P. G., Wainwright, N. W. J., Bockholdt, S. M., Luben, R. N., Warcham, N. J., & Khaw, K. T. (2008). Major depression, C-reactive protein, and incident ischemic heart disease in health men and women. *Psychosomatic Medicine*, 70, 850-855.

- Swanson C. K. & Garwick G. B. (1990) Treatment for low-functioning sex offenders: group therapy and interagency cooperation. *Mental Retardation* 28, 155-161.
- Tabachnick, B. G., & Fidell, L. S. (1996). *Using Multivariate Statistics, 3rd edn.* Harper Collins. New York.
- Taylor, C. B., Conrad, A., Wilhelm, F. H., Neri, E., DeLorenzo, A., & Kramer, M. A. (2006). Psychophysiological and cortisol responses to psychological stress in depressed and nondepressed older men and women with elevated cardiovascular disease risk. *Psychosomatic Medicine*, 68, 5380546.
- Thibaut, F. (2016). Pharmacological treatment of sex offenders. *European Psychiatry*, 33S43. doi:10.1016/j.eurpsy.2016.01.895
- Thomas, J. C., & Hersen, M. (2003). *Understanding research in clinical and counseling psychology.* Mahwah, N.J.: Lawrence Erlbaum Associates.
- Thompson D. (1997) Profiling the sexually abusive behaviour of men with intellectual disabilities. *Journal of Applied Research in Intellectual Disabilities* 10, 125–139.
- Turner, B. W., Bingham, J. E., & Andrasik, F. (2000). Short-term community-based treatment for sexual offenders: Enhancing effectiveness. *Sexual Addiction & Compulsivity: The Journal of Treatment and Prevention*, 7(3), 211-223.
- Tzeng, O. C. S., & Welch, J. (1999). Inconsistencies across three contextual meanings of reliability. *Quality and Quantity*, 33(2), 117-133.
doi:http://dx.doi.org.antioch.idm.oclc.org/10.1023/A:1004301622645
- Vallentine V, Tapp J, Dudley A, Wilson C, Moore E (2010) Psycho-educational groupwork for detained patients: Understanding mental illness. *Journal of Forensic Psychiatry & Psychology* 21(3): 393–406.
- Van der Knaap, L. M., Leenarts, L. E. W., Born, M., & Oosterveld, P. (2012). Reevaluating interrater reliability in offender risk assessment. *Crime & Delinquency*, 58, 147–163. Online first publication October 1, 2010.
doi:10.1177/0011128710382347
- Vedhara, K., Cox, N. K. M., Wilcock, G. K., Perks, P., & Hunt, M., (1999). Chronic stress in elderly carers of dementia patients and antibody response to influenza vaccination. *Lancet*, 353, 627–31.
- Vgontzas, A. N., Zoumakis, E., & Bixler, E. O. (2004). Adverse effects of modest sleep restriction on sleepiness, performance, and inflammatory cytokines. *J Clin*

Endocrinol Metab., 89(5), 2119–2126.

- Viding, E. (2004). Annotation: Understanding the development of psychopathy. *Journal of Child Psychology and Psychiatry*, 45, 1329–1337.
- Vitacco, M. J., Erickson, S. K., Kurus, S., & Apple, B. N. (2012). The role of the Violence Risk Appraisal Guide and Historical, Clinical, Risk-20 in US courts: A case law survey. *Psychology, Public Policy, and Law*, 18(3), 361.
- Vitacco, M. J., Neumann, C. S., & Jackson, R. L. (2005). Testing a four-factor model of psychopathy and its association with ethnicity, gender, intelligence, and violence. *Journal of Consulting and Clinical Psychology*, 73(3), 466.
- Walker, L. G. (1998). Hypnosis and cancer: host defenses, quality of life and survival. *Contemporary Hypnosis*, 15(1), 34-39.
- Walker, L. G., & Eremin, O. (1995). Psychoneuroimmunology: new fad or the fifth therapeutic modality? *American Journal of Surgery*, 170, 2–4.
- Walker, L. G., Heys, S. D., & Eremin, O. (1999). Surviving cancer: Do psychosocial factors count?. *Journal of Psychosomatic Research*, 47(6), 497-503.
doi:10.1016/S0022-3999(99)00060-4
- Walsh, Z., Swogger, M. T., & Kosson, D. S. (2004). Psychopathy, IQ, and violence in European American and African American county jail inmates. *Journal of Consulting & Clinical Psychology*, 72, 1165-1169.
- Wang, J. N. (2014). Paying the Piper: The Cost of Compliance with the Federal Sex Offender Registration and Notification Act. *New York Law School Law Review*, 59(4), 681-705.
- Ward, T., & Hudson, S. M. (2000). *A self-regulation model of relapse prevention*. In D. R. Laws, S. M. Hudson, & T. Ward (Eds.), *Remaking relapse prevention with sex offenders: A sourcebook* (pp. 79–101). Thousand Oaks, CA: Sage.
- Ward, T., Hudson, S. M., & Keenan, T. (1998). A self-regulation model of the sexual offense process. *Sexual Abuse: A Journal of Research and Treatment*, 10(2), 141-157.
- Ward, T., Louden, K., Hudson, S. M., & Marshall, W. L. (1995). A descriptive model of the offense chain in child molesters. *Journal of Interpersonal Violence*, 10, 452–472.
- Wheeler, J. G., George, W. H., & Marlatt, G. A. (2006). Relapse prevention for sexual

offenders: Considerations for the “Abstinence Violation Effect.” *Sexual abuse: a Journal of Research and Treatment*, 18(3), 233-248.

Wood, C., Welman, M., & Netto, L. (2000). A profile of young sex offenders in South Africa. *Southern African Journal of Child and Adolescent Mental Health*, 12(1), 45-58.

World Health Organization (2002). *WHO Multi-country study on women’s health and domestic violence against women: Initial result on prevalence, health outcome and women’s responses*. Available at: http://www.who.int/gender/violence/who_multicountry_study/en/index.html (accessed January 2010).

Yates, P. M. (2002). *What works: Effective intervention with sex offenders*. In H.E. Allen (Ed.), *What Works: Risk Reduction: Interventions for Special Needs Offenders*. Lanham, MD: American Correctional Association.

Yates, P. M. (2003). Treatment of adult sexual offenders: A therapeutic cognitive-behavioral model of intervention. *Journal of Child Sexual Abuse*, 12, 195-232.

Yates, P. M. (2005). *Pathways to the treatment of sexual offenders: Re-thinking intervention*. Forum, Summer. Beaverton, OR: Association for the Treatment of Sexual Abusers, 1-9.

Yates, P. M. (2007). *Taking the leap: Abandoning relapse prevention and applying the self-regulation model to the treatment of sexual offenders*. In D. Prescott (Ed.), *Applying Knowledge to Practice: The Treatment and Supervision of Sexual Abusers*, Oklahoma City, OK: Wood ’n’ Barnes.

Yates, P. M. (2013). Treatment of sexual offenders: Research, best practices, and emerging models. *International Journal of Behavioral Consultation and Therapy*, 8(3-4), 89.

Yates, P. M., Goguen, B. C., Nicholaichuk, T. P., Williams, S. M., Long, C. A., Jeglic, E., & Martin, G. (2000). *National Sex Offender Programs (Moderate, Low, and Maintenance Intensity Levels)*. Ottawa, Canada: Correctional Service of Canada.

Yates, P. M., & Kingston, D. A. (2006). Pathways to sexual offending: Relationship to static and dynamic risk among treated sexual offenders. *Sexual Abuse: A Journal of Research and Treatment*, 18, 259-270.

Yates, P. M., Prescott, D. S., & Ward, T. (2010). *Applying the Good Lives and Self-regulation Models to Sex Offender Treatment: A Practical Guide for Clinicians*. Brandon, VT: Safer Society Press. [http://www.safer-society-](http://www.safer-society.org/safer-society-)

press/.

- Yates, P. M., & Ward, T. (2007). *Treatment of sexual offenders: Relapse prevention and beyond*. In K. Witkiewitz and G.A. Marlatt (Eds.), *Therapists' Guide to Evidence-based Relapse Prevention* (pp. 215- 234). Burlington, MA: Elsevier.
- Zachariae, R. (2009). Psychoneuroimmunology: A bio-psycho-social approach to health and disease. *Scandinavian Journal of Psychology*, 50(6), 645-651.
- Zernig, G., Wallner, R., Grohs, U., Kriechbaum, N., Kemmler, G., & Saria, A. (2008). A randomized trial of short psychotherapy versus sustained-release bupropion for smoking cessation. *Addiction*, 103(12), 2024-2031.
- Zoukr, I., Bartholomeusz, M. D., & Hodgson, D. M. (2016). Early life programming of pain: focus on neuroimmune to endocrine communication. *Journal of translational medicine*, 14(1), 1.