**THE RELATIONSHIP BETWEEN LENGTH OF INCARCERATION, RISK, AGE
AND SEXUAL RECIDIVISM**

by

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A thesis submitted to
the Faculty of Graduate and Postdoctoral Affairs
in partial fulfillment of the requirements for the degree of

Master of Arts

in

Psychology

Carleton University
Ottawa, Canada

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Your file Votre référence
ISBN: 978-0-494-83082-6
Our file Notre référence
ISBN: 978-0-494-83082-6

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Abstract

The risk posed by sex offenders to the general public is of particular concern however, incapacitation is an expensive mode of preventing further sexual offending. The main goal of incarceration is deterrence of recidivism. Empirical research, however, does not support that incarceration effectively deters sexual offenders from re-offending. The present study used a sex offender data base ($n = 237$) with almost 19 years follow up to examine the moderating effects of risk, age, sexual deviance and general criminality on sexual re-offending. The Static-2002R was used to assess and control for risk at the time of the index offence. No relationship was found between sentence length and either violent or sexual recidivism. Cox regression analyses indicated a significant interaction between risk and length of incarceration for violent recidivism. No moderator effects were found for age. Criminality moderated the relationship between age and sexual recidivism.

Keywords: incarceration, age, recidivism, sexual offenders

Acknowledgements

Firstly, I would like to thank Dr. Kevin Nunes for all of his continued support and guidance throughout this and other projects. I am truly grateful for your help and expertise. I would also like to thank my committee members Dr. Craig Bennell, Dr. Ralph Serin, Dr. Shelley Brown, Dr. Diana Majury, and Dr. Tina Daniels for all of their helpful suggestions and feedback.

Many thanks to Brian Grant and the Correctional Service of Canada for providing me a secure place to code the criminal record files used for this study. Thank you also to Shelley Brown for allowing me the use of the database of offender information used for this research.

I would like to thank the members of the Aggressive Behaviours and Cognitions lab. Having the academic support of my lab members helped guide me through this process. I would also like to specifically thank Kelly Babchishin and Chantal Hermann for all of their academic guidance. Thank you for always being there to answer my questions and guide me throughout this endeavor.

Thank you also to Angela and Holly for always being willing to read my manuscripts and being there to give me constant encouragement.

I would especially like to thank my parents, for their continued love and support. I truly could not have done this without you. I am eternally grateful for your belief in me throughout this process.

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The Relationship between Length of Incarceration, Risk, Age and Sexual Recidivism

In recent decades, increasing recognition of the large number of victims of sexual assault has sparked a focus on methods of deterring sexual offenders. Self-reported sexual victimization rates are shockingly prevalent with 22% of women and 3.8% of men reporting adult sexual assault (Elliot, Mok, & Briere, 2004), and 17.3% of females and 3.4% of males reporting childhood sexual abuse before the age of 16 (Fergusson, Lynskey, & Horwood, 1996). In 2000, a phone survey revealed that 499,900 sexual assaults were committed in 1999 (Brennan & Taylor-Butts, 2007). A 2007 survey from Statistics Canada also suggested that only one in ten sexual assaults are ever reported to the authorities (Brennan & Taylor-Butts, 2007).

The risk posed by sex offenders weighs heavily on the public's conscience due to the large amount of reported sexual abuse and the long-term negative physical and psychological effects this type of offending has on victims (Resick, 1993; Roosa, Reinholtz, & Angelini, 1999). The effects sexual assault has on victims can be both physical and psychological and range from injury, infection, and sexually transmitted infections to post traumatic stress disorder, substance abuse, fear and anxiety (Resick, 1993; Levitan, Rector, Sheldon, & Goering, 2003; Widom, 1999). Accordingly the general public has justified reservations about sex offenders who are sentenced to little or no incarceration or serve their sentences within the community (Levenson, Brannon, Fortner, & Baker, 2007). Even though research has shown that sexual offence convictions are more likely to result in custodial sentences than other violent crimes (Brennan & Taylor-Butts, 2007) and sexual re-conviction rates remain generally low (Harris &

Hanson).

Incarceration may reassure the public that an offender is unable to re-offend however; it is an expensive mode of incapacitation. The average cost of incarcerating an offender in a Canadian penitentiary in 2008-2009 was \$109,699 per year (Public Safety Canada, 2010). The average annual cost of maintaining an offender in the community is substantially less (\$26,476; Public Safety Canada, 2010). From 2004-2008 there were consecutive increases in the number of offenders serving time in federal prisons (Public Safety Canada, 2010). The Canadian government spent \$3.85 billion dollars on federal and provincial corrections from 2008-2009 and, over the last five years, these expenditures have gone up for both federal and provincial corrections by 30.7% and 18.4 % respectively even after adjusting for inflation (Public safety Canada, 2010). If sex offence re-arrest rates are generally low then incarceration is an extremely costly way of protecting the community.

The “tough on crime” movement in the United States has pushed for getting tough on offenders. This movement has been defined as a set of policies that put emphasis on punishment as a response to crime (Beckett & Sasson, 2005). Examples of tough on crime policies include the introduction of the three strikes rule, zero tolerance policies and mandatory sentences. Notably, the United States has implemented many of these policies throughout the country and also has the highest rate of incarceration in the world (Hartney, 2006). Following suit, the Conservative government has also proposed mandatory sentences and lists one of its priorities as passing tougher laws to keep sexual offenders in prison (Conservative Party of Canada, 2011). Opinions driving the get tough movement may only be concerned with the retributive aspects of incarceration not

reductions in recidivism. However, questions have been raised about the effects of incarceration on an offender's propensity to re-offend after release. Are longer sentences truly reducing recidivism rates?

Incarceration and Recidivism

There are numerous theories pertaining to the effects of incarceration on general re-offending. Gendreau, Goggin, and Cullen (1999) organized these theories into three schools of thought: deterrence theory, prison as a school of crime, and prison having no effect on recidivism.

Deterrence theory holds that time spent in prison will act as a deterrent for future offending. Deterrence is theorized in two ways: specific and general deterrence. Specific deterrence is an objective of sentencing aimed at persuading the offender to refrain from committing future offences (Ferris, 2005). Longer prison sanctions should, in theory, induce a response that would cause avoidance of behaviours that would lead to further punishment. General deterrence operates on a broader level and asserts that punishment does not need to be experienced by the individual in order for deterrence to occur (Akers & Sellers, 2004). In a Canadian survey of judges, 70% rated specific deterrence as an influential goal in sentencing procedures (Bonta, Bourgon, Jesseman, & Yessine, 2005). Interestingly, the two most popular forms of punishment applied for the purpose of specific deterrence are incarceration and intermediate sanctions (i.e., electronic monitoring, home confinement, intensive surveillance) neither of which are supported by convincing research to reduce recidivism (Smith, Goggin, & Gendreau, 2002). Although deterrence theory drives many sentencing practices, research does not seem to support the notion that prison is an effective deterrent for future criminal behaviour.

Incarceration is also thought of as a form of 'crime school' in that lengthier sentences can actually increase rates of recidivism (Branham, 1992). This theory is based on the idea that when criminals live in close quarters, the opportunity arises to learn more about crime and to network with other criminals. Being confined to a living environment with other offenders and being stigmatized as a criminal should further ingrain a deviant criminal lifestyle. Incarceration not only confines criminals together but removes them from the outside world, thereby removing them from prosocial networks. Following a literature review, Orsagh and Chen (1988) concluded that the longer a person spends incarcerated, the further removed they become from social bonds, including interpersonal and familial relationships, and economic networking and opportunities. A loss of these prosocial relationships and influences can result in less positive influence and opportunity thereby increasing the propensity to re-offend. This has also been called the criminogenic effect (Vieraitis, Kovandzic, & Marvell, 2007). Following this school of thought, longer prison sentences would likely be more harmful than useful and may not be the most effective form of punishment for reductions in recidivism.

Social psychologists have theorized that behaviour is learned and is essential for both survival and development (Bandura, 1977). As outlined in Albert Bandura's Social Learning Theory of Aggression (1977), behaviour is adopted from observational learning. Observational learning is performed on a vicarious basis by which learning is acquired through observation of behaviour and its subsequent consequences (Bandura, 1977). Another important determinant of behaviour is the subculture where one resides. If the living environment facilitates and rewards a particular behaviour then the behaviour is more likely to be present and reoccurring. Modeling (instigator) and reinforcement

(regulator) operate together and behaviour is learned through observation and reinforced through practice (Bandura, 1977). If a particular behaviour is learned through the social observation of others and reinforced by the subculture in which one resides then this theory is analogous with crime school theories of incarceration. Prison environments not only offer models of antisocial behaviour but often these behaviours are rewarded by other inmates and at times are necessary for survival within the institution. This being the case, a longer incarceration period would then provide more opportunity for antisocial modeling and reinforcement.

Research in this area for general crime has provided some support for the crime school theory in relation to recidivism. Dejong (1997) showed that offenders with fewer conventional ties to society were more likely to re-offend after incarceration. Bartell and Winfree (1977) examined 100 offenders who were convicted of burglary in New Mexico. After controlling for variables such as age, offence history, and severity of the crime, researchers concluded that offenders were less likely to re-offend when placed on probation versus incarceration. A meta-analysis examining general offending involving over 50 studies and 300,000 offenders found a 3% increase in recidivism for longer prison sentences (Gendreau, Goggin & Cullen, 1999). An examination of 222 offender groups who served shorter (an average of 17 months) versus longer sentences (an average of 30 months) found that the offenders who served longer sentences had slight increases (2-3% depending on the weighting of effect sizes) in recidivism (Gendreau, Goggin, Cullen & Andrews, 2000). The groups were matched on approximately one to five risk factors. Another quantitative review examined 117 studies on the relationship between forms of punishment and recidivism (more versus less incarceration, incarceration versus

community sanctions, and intermediate sanctions). Researchers found that the type of punishment (or sanction) was not associated with decreases in recidivism (Smith, Goggin & Gendreau, 2002). Evidence for the “criminogenic” effect was found in this study in that increases in length of incarceration showed slight increases in re-offence rates (Smith, Goggin & Gendreau, 2002). Therefore there is evidence to support the crime school theory of incarceration.

The final school of thought is that prison may have no effect on recidivism. If incarceration has no effect on recidivism then re-offense rates would remain consistent for all offenders of comparable risk levels regardless of the type of sanction received. If this were the case, research should generally show no significant differences between offenders of similar risk regardless of sentence length received or how much time was served in an institution. Research has also supported this theory.

Cohen, Eden and Lazar (1991) found no significant difference in recidivism between those who were sentenced to incarceration compared to those who received probation. Beck and Hoffman (1976) also found no effect of sentence length on recidivism. Gendreau, Goggin, Cullen and Andrews (2000) also found no effect when effect sizes were weighted by sample size. Research supports the idea that there is no relationship between prison sanctions and recidivism and meta analyses have shown either a slight increase in re-offence rates for longer sentences or no effect whatsoever (Gendreau, Goggin, Cullen, & Andrews, 2000; Gendreau, Goggin, Cullen, Andrews, 2001).

Incarceration and Risk

Prisons separate high risk and low risk offenders creating very different

environments and prison cultures. Prisons in Canada are also differentiated using the categories minimum, medium, maximum, and multiple level security based on security level and formal controls within the institution (Correctional Service Canada, 2010). An offender's risk classification has serious implications on the level of deprivation experienced within the institution and the influence of a social environment consisting of high-risk peers (Chen & Shapiro, 2007). Chen and Shapiro (2007) showed evidence that higher level security placement resulted in less freedom, less outside contact, and more violence exposure.

Gaes and Camp (2009) evaluated both prison misconduct and recidivism information in the only experimental design assessing these two variables where inmates were randomly assigned to prison security levels. This study compared an experimental and control group matched on characteristics such as age, gang affiliation, and history of violence. Findings demonstrated that offenders serving sentences in higher security levels showed higher rates of returning to prison. Chen and Shapiro (2007) also showed that increased security level placement increased post release arrest for violent crimes.

Deterrence effects are also more likely to be supported in lower risk populations. (Gendreau, Goggin & Cullen, 1999). There is some evidence supporting deterrence theory for lower risk offenders serving shorter prison sentences suggesting that shorter sentences can actually reduce the occurrence of re-offence behaviours in this specific population (Orsagh & Chen, 1988). Walker, Farrington and Tucker (1981) found that incarceration did actually function as a deterrent and was more effective than probation in reducing recidivism for first time offenders. Perhaps the relationship between incarceration and recidivism must be examined closer in relation to risk.

Sex Offenders

There is evidence to suggest that sexual offenders may differ with regards to risk factors for recidivism from nonsexual offenders (Hanson & Bussiere, 1998). The development of numerous sex offender specific risk assessment instruments reflects these differences. These tools include the Clinical Judgments-Minimum Criteria (SAJC-Min; Grubin, 1998), the Rapid Risk Assessment for Sex Offence Recidivism (RRASOR; Hanson, 1997) and the Sex Offender Risk Appraisal Guide (SORAG; Quinsey et al., 1998). Based on these differences in risk factors, research on the relationship between incarceration and recidivism has also examined sexual offenders specifically in order to determine if the relationship between incarceration and sexual recidivism is different.

Hanson and Bussiere (1998) conducted a meta-analysis and found that sentence length was unrelated to violent or general recidivism in sexual offenders but did show a small significant relationship with sexual recidivism ($r [2,927] = .04, 95\% CI [.01, .08]$).

In regards to the level of risk of sexual offenders some evidence does suggest that sexual offenders who are defined as high risk are more likely to receive more severe sanctions than those who are at a lower risk (Berliner, Schram, Miller & Milloy, 1995; McCormick, Maric, Seto & Barbaree, 1998). As previously noted prison level assignment can have an impact not only on the offender's connection with the outside world but their exposure to a harsher environment (Chen and Shapiro, 2007) Those convicted of sexual crimes are typically not held in positive regard within institutional settings. This adversity within sex offenders living conditions could increase the adversity of the prison environment. As research has shown sexual offenders differ on certain risk factors this bears the questions as to whether the effects of incarceration on recidivism differ for

offenders serving sentences for sexual crimes. Since risk was shown to impact future offending for non-sexual offenders could risk be moderating the relationship between sex offenders and time spent incarcerated?

As a result of the questions raised above, Nunes et al. (2007) tested the hypothesis that the impact of incarceration may be affected by an offender's individual risk of re-offending, and measured how time spent in prison was related to either violent or sexual recidivism. The study examined 627 sexual offenders sentenced to community supervision or prison sentences (ranging from 1-120 months, mean = 21.24) in both provincial (less than 2 years) and federal (greater than 2 years) institutions. Results indicated no relationship between incarceration and recidivism or length of incarceration and risk level. Risk, as measured by the Rapid Risk Assessment for Sexual Offence Recidivism (RRASOR; Hanson, 1997), was also not significantly correlated to incarceration ($r[606] = .03, p > .05$) or length of incarceration ($r[387] = .04, p > .05$). No evidence was found to support a criminogenic effect of incarceration or deterrence theory. No support was found for the relationship between incarceration and recidivism even when controlling for risk. Results also did not show support for the nonlinear relationship between sentence length and recidivism, as suggested by Orsagh and Chen (1988). These results suggest there is no optimal length of incarceration to deter sexual or violent recidivism even when statistically controlling for risk.

Limitations for this research do exist in that prison sentence lengths were generally short (sentence length was positively skewed with most of the sentences being relatively short). Although the average opportunity to reoffend was relatively long (i.e., 8.11 years), a longer follow-up will offer a higher base-rate of reoffending (Harris &

Hanson, 2004) and thus greater insight into the effects of a variable over time. Another limitation of this study was that risk was measured by a modified version of the RRASOR. The RRASOR has shown a medium association with sexual and violent recidivism (mean $d = 0.59$ and $d = 0.34$ respectively; Hanson & Morton-Bourgon, 2004) and has shown good inter-rater reliability (Barbaree, Seto, Langton, & Peacock, 2001). However, this tool consists of only four items, only assessing sexual criminality (thus ignoring general criminality; Barbaree, Langton & Peacock, 2006), and consequently, has a narrow focus compared to other assessment instruments.

If deterrence theory is correct for sexual offenders then research in this area should consistently show decreasing rates of recidivism for individuals receiving longer prison sentences. However, research to date has not supported this. Currently, the relationship between incarceration and recidivism has shown no definitive link either with sexual or nonsexual offenders even after controlling for risk. Therefore other factors should be incorporated into this area of research in order to fully understand the impact that prison has on sexual offender recidivism.

The Age Component

One variable that has been of particular interest in the study of sex offender recidivism is age. Accused sex offenders, appear to be slightly older than the general population and marginally older than the offender population on average (Hanson, 2001). The age distribution of sex offenders is bimodal with the first peak appearing at the age of 13 and the second peak in the mid to late thirties (Canadian Centre for Justice Statistics, 1999).

A relationship between recidivism rates and age has also been shown for sexual

offenders. Hanson and Bussiere (1998) found that recidivism rates for sexual offenders appear to decline with increases in age. This relationship has also been described as linear indicating substantial declines as the offender ages (Barbaree, Langton & Blanchard, 2007; Prentky et al., 2006). Fazel, Sjostedt, Langstrom, & Grann (2006) found that recidivism rates declined significantly in older age groups. Fazel et al. (2006) also showed that the highest rates of recidivism were found in the youngest age bracket (under 25 years of age), followed by the second youngest (between the ages of 25 and 39) and oldest offenders (above age 55), and finally, the lowest rate was shown by the second oldest group (aged 40-54 years) indicating a curvilinear relationship. Logan et al. (2003) reported a significant drop off in recidivism rates for offenders over the age of 45. Milloy (2007) also reported a significantly lower recidivism rate for offenders above 50 years of age. Knight and Thornton (2006) also found a curvilinear relationship between age-at-release and sexual recidivism after controlling for age-at-index. After reviewing all of these results, Doren (2007) suggested that the relationship between age and recidivism for the entire sex offender population is best described as curvilinear.

Actuarial risk assessment scales have also recognized age as an important risk factor. The RRASOR (Hanson, 1997), Static-99 (Hanson & Thornton, 2000), and the Sex Offender Risk Appraisal Guide (SORAG; Quinsey, Harris, Rice & Cormier, 1998), among others, distinguish between the differing levels of risk observed for offenders according to age. All of these tools note the age band of 18-24 as being the highest risk group. There also seems to be consensus that the lowest risk group is comprised of offenders over the age of 60 (Thornton, 2006). The Static-99 is the most widely used actuarial risk prediction tool for assessing the risk of future recidivism among sex

offenders. Hanson and Thornton (2003) acknowledged the differences in the age distribution of sexual offenders and recommended the age item be revised to have a greater weight. Recently revisions of the Static -99 (Static-2002; Hanson & Thornton, 2003) have been put forth to accommodate the differences in the age distribution of sexual offenders. The Static-99R showed revisions to the age variable that added incremental validity for the risk assessment instrument. The Static-2002 distinguishes age as a risk factor dividing the age categories into four distinct groups with different respective scores for each category (18-24.8 was given a score of three; 25 to 34.9 a score of two; 35 to 49.9 a score of one; 50 or older a score of zero). More recently, the Static-2002R was created to further advance the accuracy of the age item.

Research on sex offending has also implicated the role of testosterone in the relationship between age and sexual offending. Testosterone is a hormone that is essential for sexual drive and sexual motivation. Some studies have shown a modest but significant relationship between testosterone and aggression (Book, Starzyk & Quinsey, 2001). One study found certain types of testosterone were significantly correlated with hostility and sexual, violent and general recidivism (Kingston et al., 2010). Testosterone levels also decrease with age (Buvat & Lemaire, 1997). Age related reductions in testosterone have also been linked to decreases in sexual behaviours (Barbaree & Blanchard, 2008). This decrease has also been offered as a possible explanation for the relationship between aging and decreased sexual recidivism (Barbaree & Blanchard, 2008).

Some researchers have argued against the relationship between age and recidivism. Harris and Rice (2007) concluded that there was no significant effect of aging on recidivism rates for sexual offenders and accordingly, that age at release did not offer

meaningful validity to risk assessment. Harris and Rice (2007) also argued that the aging effect found in previous research is confounded with differences in risk scores. These researchers suggest that the effects of aging are actually due to older offenders having lower actuarial risk. Other researchers have shown evidence to support this claim (Hanson, 2006; Barbaree, Langton, & Blanchard, 2007; Barbaree & Blanchard, 2008). Numerous studies have shown that high-risk offenders are typically younger when released (Harris & Rice, 2007; Barbaree, et al. 2007). Harris and Rice suggest that older offenders are less likely to reoffend because of their lower risk not because of the aging effect.

Age, Sexual Deviance and Criminality

Thornton (2006) found that prior sentencing occasions for sexual offenders was positively correlated with age at release while prior non-sexual sentencing occasions were negatively correlated with age at release. These results showed that the relationship between age and recidivism differs for general criminals versus more deviant sexual criminals. Thornton (2006) also found that age at release was a significant predictor of sexual recidivism when sexual deviance and general criminality were controlled. Thornton also suggests that these results may be explained by differences between typologies of sexual offenders (i.e., rapists vs. child molesters).

The age distribution of sexual offenders differs between different typologies of sex offenders (i.e., child molesters, incest offenders, and rapists). Hanson (2002) showed a consistent decline in recidivism for rapists, but for extra-familial child molesters rates remained consistent with the decline only being apparent after age 50. This relationship was not linear for incest offenders who showed a more rapid decline after a markedly

higher peak at ages 18-24, and then showed little change until another decline after the age of 60. Motiuk and Brown (1996) found that recidivism rates differed depending on the classification of the offender. Incest offenders showed the lowest rates of general, sexual, and violent recidivism when compared to rapists and extrafamilial child molesters.

These differences in sex offender types may provide evidence that the relationship between sexual recidivism and other variables may be specific to type of sexual offender. Sexual recidivism has also been linked to two factors: sexual deviance and antisocial orientation (Roberts, Doren, & Thornton, 2002). Hanson & Morton-Bourgon (2005) showed meta-analytic evidence that the strongest predictors of sexual recidivism were factors related to sexual deviance ($d = .30$) and antisocial orientation ($d = .23$). In the same study antisocial orientation was also a significant predictor of violent (including sexual) recidivism ($d = .54$). Hanson and Bussière (1998) found a correlation of $r = .09$ between deviant sexual attitudes and recidivism.

Researchers have also suggested that the relationship between sexual deviance and general criminality differs by age. Accounting for age may indeed increase predictive accuracy for offenders who present high in antisocial traits (Barbaree, et al. 2007). Antisocial orientation (also referred to as general criminality) refers to antisocial traits such as substance abuse, impulsive behavior, and rule violation (Hanson & Morton-Bourgon, 2005). Sexual deviance traits are those that reflect enduring preferences for deviant or illegal sexual acts such as a sexual interest in children, paraphilias, and rape (Hanson & Morton-Bourgon, 2005). Antisocial traits are more characteristic of younger offenders (Barbaree, Langton, Blanchard, & Boer, 2008). Also higher scores on

antisocial items from three actuarial sex offender risk assessment tools were associated with younger age at release (Barbaree et al., 2007; Barbaree et al., 2008). In contrast items that reflect risk factors related to sexual deviance had the opposite relationship with age suggesting that higher risk sexual offenders were released at an older age (Barbaree et al., 2007). This relationship may also be accounted for by the differences in the age distribution of different types of sex offenders (Barbaree, Langton, Blanchard & Cantor, 2009). As previously described rapists are on average younger than child molesters. Rapists are also more likely to exhibit traits related to criminality while child molesters are more likely to exhibit traits related to sexual deviance (Firestone, Bradford, Greenberg, & Serran, 2000).

From the above research it is clear that age has a relationship with recidivism for sex offenders, therefore it is possible that age may play a role in the relationship between incarceration length and re-offending. Although age has been previously studied (Barbaree, Langton & Blanchard, 2007; Hanson, 2006; Thorton, 2006) the potential interaction between age, incarceration, and risk on recidivism has not yet been examined. If a sexual offender's risk declines with age then longer prison sentences should in theory be reducing recidivism; however this does not seem to be the case. The importance of the sexual deviance and general criminality risk factors in relation to age has also been put forth. If the relationship between age and recidivism differs depending on general criminality and sexual deviance scores then it is important to incorporate these two constructs into research examining age and risk variables. Previous research has found mixed results suggesting a more in depth look at the relationship between age, risk and recidivism. Incorporating the distinction between sexual deviance and general criminality

risk factors may aid in a better understanding of the effects of incarceration on sexual offenders and the effects age has on this relationship.

The Present Study

The study conducted by Nunes et al. (2008) on the relationship between risk, sentence length, and recidivism used the RRASOR to measure and control for risk. As previously stated this tool consists of only four items that assess sexual criminality and age and, thus, has a narrow focus. The Static-99 is a combination of the RRASOR and the Structured Anchored Clinical Judgements-Minimum Criteria (SAJC-Min; Grubin, 1998). The combination of the two shows more predictive accuracy than either scale used independently (Hanson & Thornton, 2000). The Static-99 also expands on the previous two scales to create a more comprehensive assessment of risk (both sexual deviance and general criminality). The Static-99 consists of ten weighted items. The Static-99 showed good validity for both sexual ($r = .33$, $AUC = .71$) and violent ($r = .32$, $AUC = .69$) recidivism (Hanson & Thornton 1999, 2000). In light of this, when looking at the relationship between risk, incarceration, and recidivism, risk may be better measured using a more comprehensive scale such as the Static-99 or the Static-2002 which focuses on factors related to general criminality as well as sexual deviance. As well, due to recent research suggesting items related to sexual deviance and general criminality have different relationships with age, the risk instrument used in the present study will be separated into two groups: one consisting of items related to sexual deviance and one consisting of items related to general criminality. This distinction will be made by examining the items related to sexual deviance and general criminality separately by both controlling for these variables (assessing them as covariates) as well as examining any

possible moderator effects of these variables on either the relationship between age or incarceration and recidivism. These analyses will help to better describe the relationship between age, risk, and incarceration on sexual and violent recidivism.

In short, the current study re-examined the effects of incarceration on sexual recidivism by incorporating a more comprehensive and up-to-date measure of risk while also examining the moderating effects of age and risk to determine if a relationship exists. The moderating effects of general criminality and sexual deviance are also explored for sentence length and age. The following research questions were examined:

1. Does length of incarceration have a relationship with violent or sexual recidivism in sexual offenders?
2. Is this relationship confounded with risk?
3. Is this relationship moderated by risk?
4. Is the relationship between sentence length and recidivism moderated by age?
5. Is the relationship between age and sentence length moderated by sexual deviance and general criminality scores?

Method

Participants

Participants were selected from a total of 2,777 sex offenders who had previously been identified in a census review. A subset of sexual offenders was then randomly selected by Motiuk and Porporino (1993) who performed extensive file reviews. At the time of the file review, a portion of the sample had previously been released into the community, while some were still incarcerated. Offenders over the age of 18 at the time

of their index offence were chosen as candidates for the case-file review. Researchers then created a follow-up sample using random selection to identify 842 sex offenders for review. Motiuk and Brown (1996) then followed up the offenders selected for the file review. Of those selected for file review, all had been in the community for a one year period as of July, 1994. The follow up database consisted of 570 sex offenders assessed during the case file-review (245 offenders were dropped from the sample due to inadequate follow-up time in the community). Of the 570 male sex offenders, 329 of which were on “caseload” (those who had been previously released) and 241 were “new releases” (those who had since been released into the community). The caseload sample had no new criminal convictions as of March, 1991. The newly released sample consisted of offenders incarcerated when the case file review was undertaken. These offenders were released after March, 1991 and available to collect follow-up information in July 1994. Sexual recidivism was defined as new convictions for sexual offences specifically and violent recidivism was defined as any new convictions for either a violent or sexual offence. A distinction was made between sexual and violent recon convictions, however this is not to say that sexual convictions are not violent in nature simply that sexual convictions are a subset of violent convictions.

In the current study, of the 570 original offenders in the sample 243 were excluded from the analyses due to missing CPICs ($n = 45$), the CPIC being available only in French ($n = 118$), no sex offense in the index ($n = 79$), a censored case before the earliest event ($n = 1$), and ($n = 110$) inadequate information to code all items in the Static-2002R. The age at release ranged from 21-59 ($M = 36.16$, $SD = 9.07$). The average follow-up period for the remaining sample ($n = 227$) was 227.75 months ($SD = 27.98$),

with an average opportunity to reoffend for sex offences of 172.66 months ($SD = 89.43$) and an average opportunity to reoffend for violent offences (including sexual) of 138.78 months ($SD = 99.91$). The average time spent incarcerated for the index offense was 43.44 months ($SD = 37.29$). No offenders were designated dangerous offenders for their index offence. Of the remaining sample 62 (27.3%) had a sexual recidivism conviction and 122 (54%) had a violent (including sexual) recidivism conviction. Criminal history variables are presented in Table 1.

Table 1

Descriptive Statistics for Prior Offences and Index Convictions

	Mean	SD	Min	Max
Prior Sexual Convictions	0.99	2.27	0	25
Prior non-sexual Violent Convictions	1.10	1.74	0	8
Prior non-sexual non-violent convictions	5.84	6.83	0	42
Index Sexual Convictions	1.72	1.27	1	36
Index Violent Convictions (not including sexual)	0.48	1.18	0	11
Index non-sexual non-violent	0.65	2.00	0	26
Sexual Recidivism Convictions	0.64	2.04	0	26
Violent Recidivism Convictions	1.16	2.68	0	22
Non-sexual non-violent Recidivism Convictions	3.32	9.92	0	111

Measures

Risk was measured using the Static-99, Static -99R, Static-2002 and Static-2002R. Information from the CPIC files was used to code items 3 (index non-sexual violence-any convictions), 4 (prior non-sexual violence any convictions), 5 (prior sex offences), and 6 (prior sentencing dates) for the Static-99, and items 2 (prior sentencing occasions for sexual offences), 4 (rate of sexual offending), 11 (prior sentencing occasions for everything), 12 (any community supervision), 13 (years free

prior to index offence), and 14 (any prior non-sexual violence sentencing occasion) for the Static-2002. The other items were scored from variables already contained in the data set (see Appendix E for a full list of Static-99 and Static-2002 items computed from the data set).

Static-99. The Static-99 is an actuarial assessment instrument designed to predict sexual recidivism among offenders. The Static-99 is the most widely used actuarial risk instrument in North America (McGrath, Cumming, Burchard, Zeoli & Ellerby, 2010) and was created by combining the Structured Anchored Clinical Judgements-Minimum Criteria (SAJC-Min; Grubin, 1998) and the Rapid Risk Assessment for Sex Offence Recidivism (RRASOR; Hanson, 1997).

The Static-99 consists of 10 items that assess age at release, relationship status, criminal history, and victim characteristics (for a complete list of items and score weights see Appendix A). Items are coded as either a 0 or a 1 excluding item 5, number of prior sex offences. This item which sums the number of charges or convictions and recodes the totals into a score of higher score on an item indicates a greater amount of risk. Scores on the Static-99 can range from 0-12 with a score under 1 being low risk, a score between 2 and 3 being a moderate low risk, 4 to 5 being moderate high, and a score of 6 or more indicating high risk (Harris, Phenix, Hanson, & Thornton, 2003)

A meta-analysis of 118 prediction studies found the Static-99 to be a significant predictor of sexual ($d = .74$), violent ($d = .51$), and general ($d = .50$) recidivism (Hanson & Morton-Bourgon, 2009). Inter-rater reliability reports have been high for the Static-99 with reported Pearson correlations of $r = .90$ and $r = .96$ (Barbaree, Seto, Langton & Peacock, 2001; Harris, Rice, Quinsey, Boer & Lang, 2003).

The Static-99R is a revision of the Static-99 with revised age weights for item #1-age at release. A slight increase in predictive accuracy was seen with this revision with an $ROC = .720$ for the Static-99R compared to an $ROC = .713$ for the Static-99 at 5 years follow-up. At 10 years follow up the Static-99R yielded an $ROC = .710$ compared to $.713$ for the Static-99 (Helmus, Babchishin, Hanson, & Thornton, 2009). Scores on the Static-99R can range from -3 to 12 with scores from -3 through 1 representing a low risk, 2 and 3 being low-moderate risk, 4 to 5 being moderate-high risk and 6+ indicating high risk.

Static-2002. The Static-99 has since been revised to increase consistency, conceptual transparency, as well as coding and predictive accuracy (Hanson & Thornton, 2003). The items considered in the revision were offender's age, criminal history information, and victim characteristics. Item 2 from the Static-99 ("Have you ever lived with a lover for at least two years") was also removed.

The Static-2002 consists of 14 items with scores ranging from 0-3 for each item (for a complete list of coding rules for the Static 2002 see Hanson & Thornton, 2003). The items are divided into five subscales; age, persistence of sexual offending, deviant sexual interests, relationship to victims, and general criminality (for a full list of items and scoring procedures see Appendix B). Possible scores on the Static-2002 range from 0-18 with scores of 0-2 representing low risk, 3 and 4 a low-moderate risk, 5-6 being moderate risk, 7-8 a moderate-high risk, and scores over 9 indicating high risk (Phenix, Doren, Helmus, Hanson, & Thornton, 2009).

The Static-2002 was also further revised to create the Static-2002R by adding the

new age item used in the Static-99R with different weighting. A slight increase was seen in predictive accuracy for the Static-2002R at 5 years with an $ROC = .712$ for the Static-2002R compared to $.710$ for the Static-2002. At 10 years follow up the ROC for the Static-2002R was $.690$ compared to $.688$ for the Static-2002 (Helmus, Babchishin, Thornton, & Hanson, 2010). Scores on the Static-2002R range from -2 to 13 with scores from -2 through 2 representing low risk, 3 and 4 a low-moderate risk, 5-6 moderate risk, 7 and 8 a moderate-high risk rating and over 9 representing a high risk.

The Static-2002 has shown to predict sexual recidivism for both rapists and child molesters and has shown little variability between samples (Hanson & Thornton, 2003). Predictive accuracy for violent recidivism has also improved with these revisions (Hanson & Thornton, 2003; Hanson & Morton-Bourgon, 2009). A meta-analytic review of 118 prediction studies showed the Static 2002 demonstrates good predictive accuracy for sexual ($d = .71$), violent ($d = .61$), and general ($d = .61$) recidivism (Hanson & Morton-Bourgon, 2009) although these results do not show the superiority of the Static2002 over the Static-99. All versions of these risk assessment scales were scored and analyzed for all offenders in the current sample in order to determine which measure had the best predictive validity.

Sexual Deviance and Criminality. The Static-2002R is divided into subcategories (age, persistence of sexual offending, deviant sexual interests, relationship to victim and general criminality). In order to determine which items were related to sexual deviance and which items were related to general criminality previous research examining this distinction was investigated. Based on Hanson and Bussiere's (1998) research as well as item content Nunes and Cortoni (2008) divided the Static-99 into two

dimensions of general criminality and sexual deviance. Roberts et al. (2002) also divided Static-99 items into three dimensions general criminality, sexual deviance and detachment. Barbaree et al. (2009) also correlated Static-99 items to age at release and then divided Static-99 items significantly correlated into sexual deviance and general criminality scales. A thorough investigation into how these items were divided to reflect the two categories was undertaken. As no research to date has been done on the relationship between age and criminality and sexual deviance scales of the Static-2002R Static-2002R items were compared to the Static-99 items used in the previous research to reflect the two constructs. Generally the items used in the above named research were similar to the general criminality and sexual deviance subscales of the Static-2002R. Therefore the previously constructed subscales of sexual deviance and general criminality outlined in the Static-2002R coding manual were used to measure sexual deviance and general criminality. Items from the Static-2002R used to create the sexual deviance scale were items 5, 6, and 7 (any sentencing occasion for non-contact sex offences; any male victims; and young, unrelated victims). Items used to create the general criminality scale were items 10,11,12,13,14 (any prior involvement with the criminal justice system; prior sentencing occasions for anything, any community supervision violation; years free prior to index sex offence; and any prior non-sexual sentencing occasions). Correlations between age at release and the sexual deviance and general criminality subscales are presented in Table 8. These subscales and their interactions were added to the Cox regression model.

Procedure

Recidivism, defined as new criminal convictions, as well as offence information

was coded by reviewing and coding records, which were pulled from the Canadian Police Information Centre (CPIC) files on November 10th, 2009 allowing for an average follow up time of 19 years ($SD = 2.33$). Coding of the CPIC record files took place between December 2009 and July 2010 in a secure room at Correctional Service of Canada in Ottawa, Ontario. Violent, sexual, and general recidivism were coded from the CPIC files. Time spent incarcerated was coded from information in the case-file database and the CPIC files. For offenders who did not have a specific release date recorded in the CPIC, two thirds of the aggregate sentence was used to determine time spent incarcerated (for a complete list of coding rules and procedures see coding manual Appendix D).

Opportunity time was calculated starting at offender's release date for the index offence, ending on either the date of the first event (recidivism), the date of death, or November 10th, 2009 (date of criminal record retrieval). Any time the offender spent incarcerated for recidivism other than the type of recidivism defined as the first event was subtracted from opportunity time. Therefore opportunity time is the time the offender spent in the community having the opportunity to reoffend against the general public. As such opportunity time varied depending on the type of recidivism being analyzed. For example, for sexual recidivism, opportunity time was defined as the time between the release date from the index sexual offence and whichever date came first: the date of the first sexual recidivism, death, or the date of the criminal record retrieval (November, 10th, 2009). Any time during that follow up period that the offender spent incarcerated for any non-sexual non-violent offences or non-sexual violent offences was subtracted from opportunity time. For violent recidivism the opportunity time was defined as the time between the release date for the index sexual offense to the first event; sexual or violent

recidivism, death or date of CPIC retrieval, subtracting any time during that period that the offender spent incarcerated for any non-sexual non-violent offences. The covariates used for the present analyses were age, risk, sexual deviance and criminality ratings (operational definitions provided in the sexual deviance and criminality section below), and sentence length.

All recidivism information recorded from the CPIC files was coded according to a coding manual created for the current study. Extensive training was undertaken on the coding procedures until consistency was obtained between two separate coders. The remainder of cases was coded by the author, and 10% of the cases were coded by a separate coder to assess inter-rater reliability. Inter-rater reliability was high with Kappa statistics ranging from .934 -1.00 for dichotomous variables and intraclass correlations ranging from .861-1.00 for continuous variables. The only exceptions were item 12 from the Static-2002 (any community supervision failure) which yielded a Kappa of .789, Static-2002 item 13 (years free prior to index) which showed an intraclass correlation of .460, and time spent incarcerated for the third sentencing occasion after the index offence (RS3SENT) which had an intraclass correlation of .617.

Results

Data screening

In utilizing Cox regression it is not necessary to meet the assumptions of normality, linearity, and homoscedasticity, however it is useful as it has implications for power, prediction and outliers. Therefore, these three assumptions were checked. After checking to see if the outliers were due to coding errors, any outliers that were detected

were reduced maintaining rank order (outliers were reduced to one point above the closest non-outlier data point). Outliers were reduced for the age and risk variables but results were virtually the same so results reported are without outliers reduced. The assumptions of multicollinearity and proportional hazards were also assessed. The variables used in the following analyses did not present multicollinearity or proportional hazards violations.

In order to determine which risk assessment tool was the best predictor of recidivism priori analyses were undertaken (Malcom & Nunes, 2011). The predictive accuracy of the scales was assessed by calculating the area under the curve (*AUC*) of the receiver operating characteristic (ROC; Rice & Harris, 1995). Table 2 shows the *AUC*'s and confidence intervals for the Static-99, Static99-R, Static-2002 and the Static-2002R. Results indicated that the best overall predictor of sexual recidivism was the Static-2002R. The Static-2002R also showed comparable predictive accuracy for violent recidivism with this sample (Table 2) therefore the Static-2002R ($M = 5.24$, $SD = 1.98$) was used to determine risk for all other analyses. Of the new release sample ($n = 110$), 38 (35%) recidivated sexually and 70 (64%) recidivated violently. Of the caseload sample ($n = 117$), 24 (21%) recidivated sexually and 52 (45%) recidivated violently.

Table 2

AUC's and Confidence Intervals for Risk Measures for Sexual and Violent Recidivism from Malcom & Nunes (2011)

Measure	Sexual	95% CI		Violent	95% CI	
		LL	UL		LL	UL
Static-99	.63	.56	.63	.70	.65	.76
Static-99R	.67	.61	.67	.76	.71	.81
Static-2002	.69	.62	.69	.76	.70	.81
Static-2002R	.70	.63	.70	.75	.71	.81

Note. CI = confidence interval.

Relationship between Incarceration and Recidivism

In order to determine if a relationship existed between sentence length and recidivism for sexual offenders, Cox regression analysis was performed. Cox regression analysis investigates the relationship between a number of predictor variables and the time it takes for an event to occur (i.e., survival time). The primary goal is to investigate the relationship between survival time and a number of predetermined predictors (Tabachnick & Fidell, 2007). Cox regression was chosen because for logistic regression the purpose is to assess the effects of multiple variables on the dependent variable whereas survival analysis determines the time to an event. Survival analysis also allows for event censoring (if the event in question does not occur). Survival analyses can be described in a similar fashion as logistic regression models however, the dependent variable is measuring the timing of a specified event (Allison, 1995). The present study was concerned with assessing the relationship between the specified predictor variables and the time to recidivism therefore it was deemed more appropriate to use Cox

regression over logistic regression or any other statistical procedure. The survival time or dependent variable for the present analyses was defined as the time the offender had to re-offend in the community (or opportunity time). A hazard ratio of 1 means no effect, therefore $100(\text{hazard ratio}-1)\%$ describes the percentage of change in the hazard for every one unit increase in the predictor being examined (Allison, 1995). Therefore as can be seen in Tables 3 and 4 no relationship was observed between sentence length and either sexual or violent recidivism.

Relationship between Risk, Incarceration, and Recidivism

In order to determine if a relationship existed between sentence length and recidivism when risk (as measured by the Static-2002R) was assessed as a covariate risk was added to the Cox regression model. For sexual recidivism controlling for risk did not change the relationship between sexual recidivism and sentence length (Table 3). However, when controlling for risk sentence length became a significant predictor of violent recidivism (Table 4).

In order to test if risk was moderating the relationship between sentence length and sexual recidivism risk and sentence length were added to the Cox regression model as covariates as well as the interaction between risk and sentence length. A moderator specifies the conditions under which a given effect occurs, as well as the conditions under which the direction or strength of an effect vary. The interaction between risk and time spent incarcerated did not add a significant amount of change ($\chi^2_{\text{change}} = 2.018, p > .05$) to the model for sexual recidivism indicating that risk did not moderate the relationship between sentence length and sexual recidivism.

When the relationship was examined for violent recidivism sentence length and risk scores were both significant predictors of violent recidivism when assessing both as covariates. The interaction between sentence length and risk added a significant amount of change to the model above that of sentence length and risk scores alone (Table 4) therefore risk was moderating the relationship between sentence length and violent recidivism.

Table 3

Relationship between Sexual Recidivism, Risk and Sentence Length

					95% CI	
	<i>B(SE)</i>	Wald	Hazard ratio	<i>p</i>	Lower	Upper
Block 1						
Sentence	-.02(.042)	0.138	0.99	.71	0.91	1.07
Block 2						
Sentence	-.05(.05)	0.95	0.96	.33	0.87	1.05
Risk	.25(.07)	11.66	1.29	.00	1.11	1.49
Block 3						
Sentence	.17(.15)	1.20	1.18	.27	0.88	1.59
Risk	.38(.12)	10.10	1.47	.00	1.16	1.86
Sentence* Risk	-.04(.03)	1.87	0.95	.17	0.91	1.02

Table 4

Relationship between Violent Recidivism, Risk and Sentence Length

					95% CI	
	<i>B</i> (<i>SE</i>)	Wald	Hazard Ratio	<i>p</i>	Lower	Upper
Block 1						
Sentence	-.02(.03)	0.77	0.98	.38	0.93	1.03
Block 2						
Sentence	-.07(.03)	4.54	0.94	.03	0.88	0.99
Risk	.30(.06)	29.87	1.35	.00	1.21	1.50
Block 3						
Sentence	.17(.10)	2.94	1.19	.09	0.98	1.44
Risk	.45(.09)	27.75	1.57	.00	1.33	1.85
Sentence*Risk	-.04(.02)	5.29	0.96	.02	0.93	0.99

As a result of risk significantly moderating the relationship between sentence length and violent recidivism an investigation was taken into this relationship. As previously stated the Static-2002R is divided into five risk categories (low, low-moderate, moderate, moderate-high and high). Cox regression analysis was performed on each of the five categories separately to determine under what conditions of risk sentence length was significant. Sentence length was not a significant predictor of violent recidivism for any of the five risk categories. Sample sizes were quite small for the low ($n = 20$) and high ($n = 11$) risk categories. To increase power, a trichotomous split was performed on the sample to create three similar sample sized groups. A large number of risk scores ($n = 88$) fell in the moderate risk category. By collapsing the low

and low-moderate categories ($n = 81$) and the moderate-high and high categories ($n = 58$) three groups of similar sample sizes were created. These groups were then labeled low (low and low moderate), medium (moderate), and high (moderate-high and high). Cox regression analysis was performed on the three samples using sentence length as a predictor of violent recidivism (Table 5). The relationship between sentence length and violent recidivism was again not significant for any of the three groups.

Table 5

Relationship between Sentence Length and Violent Recidivism by Static-2002R Risk Categories

					95% CI	
Risk	B (<i>SE</i>)	Wald	Hazard Ratio	<i>P</i>	LL	UL
Low						
Sentence	.00(.01)	0.01	1.00	.94	0.99	1.01
Medium						
Sentence	.00(.00)	0.03	1.00	.88	0.99	1.01
High						
Sentence	-.01(.01)	1.54	0.99	.22	0.99	1.00

Relationship between Age, Risk, Incarceration and Recidivism

As a result of the non-significant relationship between sentence length and sexual recidivism observed in the results (even when assessing risk as a covariate) there is reason to believe that another variable may be moderating this relationship. The following analyses examined the relationship between sentence length and sexual recidivism or violent recidivism and the possible moderation effect of age (at release) of the offender. In order to examine if age acts as a moderator in the relationship between sexual recidivism and sentence length, age at release was added to the model as a continuous variable. If the model shows significant changes when age is entered as a predictor, then we know that the predictor (depending on the strength and direction of change) is having an effect on the relationship between the other predictor variables in the model and sexual recidivism. When age is added to the cox regression model as a

covariate with sentence length it does create significant change in the relationship between sentence length and sexual recidivism ($\chi^2_{change} = 8.49, p < .01$), however it does not change the significance of sentence length in the prediction of sexual recidivism. Age also did not moderate the relationship between risk and sexual recidivism ($\chi^2_{change} = 0.33, p > .05$) nor did it moderate the relationship between sentence length and sexual recidivism ($\chi^2_{change} = 0.06, p > .05$). These results were also duplicated using Static-2002R total scores without item #1 (age) in order to ensure that age did not confound the results by being entered into the model twice. Results measuring the relationship between risk, sentence length and recidivism excluding the age item of the Static2002R were virtually identical and thus not reported.

When the relationship between age, risk and sentence length was examined for violent recidivism, age remained a significant predictor of violent recidivism even after assessing risk and sentence length as covariates (Table 7). The effects of age on the relationship between sentence length and violent recidivism as well as the effects of age on the relationship between risk and violent recidivism were virtually the same as were observed for sexual recidivism.

Table 6

Relationship between Sexual Recidivism, Age, Risk and Sentence Length

	<i>B</i> (<i>SE</i>)	Wald	Hazard ratio	<i>P</i>	95% CI	
					Lower	Upper
Block 1						
Sentence	-.00(.00)	0.21	1.00	.65	0.99	1.01
Risk	.24(.07)	10.60	1.27	.00	1.12	1.48
Age	-.03(.02)	2.05	0.98	.15	0.94	1.01
Block 2						
Sentence	.00(.02)	0.02	1.00	.90	0.97	1.04
Risk	.24(.07)	12.13	1.29	.00	1.12	1.48
Age	-.02(.02)	1.72	0.97	.19	0.92	1.02
Sentence*Age	.00(.00)	0.05	1.00	.82	1.00	1.00
Block 3						
Sentence	.01(.02)	0.06	1.01	.81	0.97	1.04
Risk	.06(.33)	0.03	1.06	.87	0.56	1.03
Age	-.05(.06)	0.78	0.95	.34	0.86	1.06
Sentence*Age	.00(.00)	0.13	1.00	.72	1.00	1.00
Risk*Age	.01(.01)	0.32	1.01	.57	0.99	1.02

Note. CI = Confidence Interval.

Table 7

Relationship between Violent Recidivism, Age, Risk and Sentence Length

	B(SE)	Wald	Hazard ratio	P	95% CI	
					Lower	Upper
Block 1						
Sentence	.00(.00)	0.03	1.00	.86	0.96	1.01
Risk	.22(.05)	16.91	1.24	.00	1.12	1.40
Age	-.05(.01)	15.43	0.95	.00	0.93	0.98
Block 2						
Sentence	.01(.01)	0.13	1.01	.71	0.98	1.03
Risk	.22(.05)	16.86	1.24	.00	1.12	1.38
Age	-.05(.02)	6.58	0.95	.01	0.92	0.99
Sentence*Age	.00(.00)	0.11	1.00	.74	1.00	1.00
Block 3						
Sentence	.01(.01)	0.44	0.98	.51	0.92	1.04
Risk	.08(.24)	10.12	0.96	.00	0.94	0.98
Age	-.07(.04)	14.91	1.27	.00	1.12	1.42
Sentence*Age	.00(.00)	0.22	1.00	.64	1.00	1.00
Risk*Age	.01(.01)	.34	1.01	.56	.99	1.02

Aggregate sentence length is the amount of time an offender is sentenced to serve irrespective of the amount of time the offender actually spends incarcerated. The sentence imposed may have a deterrent effect regardless of the amount of time the offender spends in prison. Arguably a longer aggregate sentence may deter offenders from re-offending irrespective of the actual time served. As well, differences in length of time served may be due to prison misconduct. Two offenders may have the same aggregate sentence length, but due to conduct within the prison the two offenders may serve different amounts of time incarcerated. For example, if two offenders receive a sentence length of

six months one offender may be released after two months for good behavior, while another offender may serve the sentence in its entirety. As differences between aggregate and served sentences can vary an analysis was undertaken to determine if the relationship between recidivism, age, and risk differs when aggregate sentence length is used as a predictor as opposed to sentence length. To test if aggregate sentence length had a significant relationship with sexual recidivism, age, and risk Cox regression analyses were performed assessing these variables as covariates as well as assessing age and risk as moderators on the relationship between sentence length and recidivism. Results showed the same relationship between aggregate sentence length, age, and risk as predictors of time to sexual recidivism as was shown for actual sentence length. Age and risk also did not moderate the relationship between aggregate sentence length and sexual recidivism. The interaction term for aggregate sentence length and Static-2002R did not add significant change to the model ($\chi^2_{change} = 0.61, p > .05$). The interaction between Static-2002R and age also did not add significant change ($\chi^2_{change} = 0.36, p > .05$), nor did the interaction between aggregate sentence length and age ($\chi^2_{change} = 0.12, p > .05$). Results were virtually the same for violent and sexual recidivism.

Relationship between Age, Sexual Deviance, General Criminality, Incarceration and Recidivism

In order to test the hypothesis that sexual deviance and general criminality moderated the relationship between either age and recidivism or sentence length and recidivism sexual deviance scores, general criminality scores, and their interactions with age and sentence length were added to the Cox regression model. Operational definitions for sexual deviance and general criminality are provided in the methods section above.

Correlations between sexual deviance, general criminality and age are shown in Table 8.

Table 8

Correlations between Sexual Deviance, Criminality, and Age at Release

	Age at Release	Criminality	Sexual Deviance
Age at Release	-	-.130*	.211**
Criminality	-.130*	-	-.097
Sexual Deviance	.211**	-.097	-

Note. * $p < .05$, ** $p < .01$.

As shown in Table 9 sexual deviance scores did not significantly predict sexual recidivism ($B = .36, p > .05$). Criminality was also not a significant predictor of sexual recidivism ($B = .08, p > .05$). Neither sexual deviance nor criminality moderated the relationship between sentence length and sexual recidivism (Table 9). When this relationship was examined for violent recidivism sexual deviance was not a significant predictor of violent recidivism ($B = .15, p > .05$), but criminality was a significant predictor ($B = .58, p < .01$) of violent recidivism. Neither sexual deviance ($B = .00, p > .05$) nor criminality ($B = .00, p > .05$) moderated the relationship between sentence length and violent recidivism (Table 10).

When examining the moderation effects of sexual deviance and criminality on age for sexual recidivism, sexual deviance and age were significant predictors of sexual recidivism. Sexual deviance did moderate the relationship between age and sexual recidivism ($B = .01, p > .05$). Criminality did significantly moderate the relationship between age and sexual recidivism ($B = .06, p < .05$) and increased the relationship with

sexual recidivism after assessing age and criminality alone as covariates (Table 11). In order to further investigate the moderation of criminality on the relationship between age and sexual recidivism a Cox regression analysis was performed using age as a predictor of sexual recidivism dividing the sample into three groups by criminality scores (a score of 1 ($n = 69$), a score of 2 ($n = 98$), and a score of 3 ($n = 60$). Results are presented in Table 12.

For violent recidivism, criminality was a significant predictor of violent recidivism when assessing sexual deviance as a covariate (Table 13). Criminality did not moderate the relationship between age and violent recidivism ($B = .03, p > .05$). Sexual deviance also did not moderate the relationship between age and violent recidivism ($B = -.01, p > .05$).

Table 9

Relationship between Sexual Recidivism, Sentence Length, Sexual Deviance and Criminality

	<i>B</i> (<i>SE</i>)	Wald	Hazard ratio	<i>p</i>	95% CI	
					Lower	Upper
Block 1						
S. Deviance	.36(.19)	3.65	1.43	.06	0.99	2.06
Crim.	.08(.17)	0.23	1.09	.63	0.78	1.52
Block 2						
S. Deviance	.37(.19)	3.85	1.44	.05	1.00	2.08
Crim.	.09(.17)	0.28	1.10	.60	0.78	1.54
Sentence	-.00(.00)	0.31	1.00	.58	0.99	1.01
Block 3						
S. Deviance	.39(.26)	2.11	1.47	.77	0.87	2.48
Crim.	.09(.017)	0.27	1.09	.00	0.78	1.54
Sentence	-.00(.01)	0.11	1.00	.01	0.99	1.01
Sentence*S. deviance	.00(.01)	0.07	1.00	.79	0.99	1.01
Block 4						
S. Deviance	.42(.27)	2.33	1.52	.13	.89	2.58
Crim.	.26(.27)	0.92	1.30	.34	.76	2.22
Sentence	.01(.01)	0.35	1.01	.56	.99	1.03
Sentence*S. deviance	-.00(.01)	0.06	1.00	.81	.99	1.01
Sentence*Crim.	.00(.00)	0.66	1.00	.42	1.00	1.00

Table 10

Relationship between Violent Recidivism, Sentence Length, Sexual Deviance and Criminality

					95% CI	
	<i>B(SE)</i>	Wald	Hazard Ratio	<i>p</i>	Lower	Upper
Block 1						
S. Deviance	.04(.15)	0.05	1.04	.82	0.77	1.40
Crim.	.57(.13)	19.78	1.77	.00	1.34	2.27
Block 2						
S. deviance	.05(.19)	0.10	1.05	.75	0.78	1.42
Crim.	.58(.13)	20.23	1.78	.00	1.39	2.30
Sentence	-.00(.00)	0.54	1.00	.47	0.99	1.00
Block 3						
S. deviance	.15(.22)	0.42	1.16	.52	0.75	1.80
Crim.	.58(.13)	20.14	1.78	.00	1.39	2.30
Sentence	-.00(.00)	0.06	1.00	.81	0.99	1.01
Sentence*S. deviance	-.00(.00)	0.33	0.99	.57	0.99	1.01
Block 4						
S. Deviance	.18(.23)	0.66	1.20	.42	0.77	1.87
Crim.	.74(.20)	13.17	2.01	.00	1.41	3.12
Sentence	.01(.01)	0.77	1.01	.38	0.99	1.02
Sentence*S. deviance	-.00(.0)	0.59	1.00	.44	0.99	1.01
Sentence*Crim.	.00(.00)	1.05	1.00	.31	1.00	1.00

Table 11

Relationship between Sexual Recidivism, Age, Sexual Deviance and Criminality

Variable	<i>B</i> (<i>SE</i>)	Wald	Hazard ratio	<i>p</i>	95% CI	
					Lower	Upper
Block 1						
S. Deviance	.36(.19)	3.65	1.43	.06	0.99	2.06
Crim.	.08(.17)	0.23	1.09	.63	0.78	1.52
Block 2						
S. Deviance	.49(.19)	7.02	1.64	.01	1.14	2.36
Crim.	.05(.17)	0.08	1.05	.78	0.75	1.47
Age	-.05(.02)	10.23	0.95	.00	0.92	0.98
Block 3						
S. Deviance	.28(.82)	0.11	1.32	.74	0.26	6.58
Crim.	.05(.17)	0.08	1.05	.78	0.75	1.47
Age	-.06(.02)	7.35	0.95	.01	0.91	0.99
Age *S. Deviance	.01(.02)	0.08	1.01	.79	0.96	1.05
Block 4						
S. Deviance	.11(.84)	0.02	1.12	.90	0.22	5.75
Crim.	-1.82(.81)	5.11	0.16	.02	0.03	0.79
Age	-.17(.05)	9.83	0.84	.00	0.76	0.94
Age * S. Deviance	.01(.02)	0.25	1.01	.62	0.97	1.06
Age *Crim.	.06(.02)	5.63	1.06	.02	1.01	1.11

Table 12

Relationship between sexual recidivism and age by criminality groups

	<i>B(SE)</i>	Wald	Hazard Ratio	<i>p</i>	<u>95% CI</u>	
					Lower	Upper
Crim. Score 1	-.10(.04)	8.08	0.90	.00	0.84	.97
Crim. Score 2	-.04(.23)	2.98	0.96	.08	0.92	1.01
Crim. Score 3	.00(.03)	0.00	1.00	.99	0.94	1.06

Table 13

Relationship between Violent Recidivism, Age, Sexual Deviance and Criminality

					95% CI	
	<i>B</i> (<i>SE</i>)	Wald	Hazard Ratio	<i>p</i>	Lower	Upper
Block 1						
S. Deviance	.04(.15)	0.05	1.04	.82	0.77	1.40
Criminality	.57(.13)	19.78	1.77	.00	1.34	2.27
Block 2						
S. Deviance	.26(.15)	2.87	1.30	.09	0.78	1.42
Criminality	.58(.13)	19.55	1.78	.00	1.39	2.30
Age	-.07(.01)	32.36	0.93	.00	0.99	1.00
Block 3						
S. Deviance	.81(.70)	1.37	2.26	.24	0.58	8.83
Criminality	.59(.13)	19.91	1.80	.00	1.39	2.30
Age	-.06(.01)	20.13	0.94	.00	0.91	0.97
Age *S. Deviance	-.02(.02)	0.65	0.99	.42	0.95	1.02
Block 4						
S. Deviance	.68(.71)	0.93	1.98	.33	0.50	7.88
Criminality	-.25(.60)	0.17	0.78	.68	0.24	2.53
Age	-.12(.05)	7.70	0.89	.01	0.82	0.97
Age * S. Deviance	-.01(.02)	0.37	0.99	.54	0.95	1.03
Age *Criminality	.03(.02)	2.00	1.03	.16	0.99	1.06

Discussion

Incarceration and Recidivism

No matter how sentence length was defined (aggregate or actual time served) it had no significant relationship with sexual recidivism. Even when risk was controlled as a covariate a relationship between sentence length and sexual recidivism was not found.

The moderation of risk on the relationship between sentence length and sexual recidivism was also not significant. These results were similar to other results found examining the relationship between sentence length and recidivism among sexual offenders. Nunes et al. (2007) found no relationship between incarceration and recidivism or length of incarceration and recidivism. Hanson and Bussiere (1998) meta-analysis found that sentence length was unrelated to violent or general recidivism. However Hanson and Bussiere did show a small significant positive relationship with sexual recidivism whereas the relationship between sentence length and recidivism in the current study consistently showed a negative relationship although not significant.

When violent recidivism was examined sentence length became a significant predictor of recidivism after assessing risk as a covariate. Analyses indicated a negative relationship between risk and sentence length for violent recidivism. Risk also moderated the relationship between sentence length and violent recidivism. This indicated that a relationship between sentence length and violent recidivism differed under certain conditions of risk. In order to better understand this relationship the sample was divided into Static-2002R risk categories.

When examining the trichotomous split of risk scores none of the risk categories had a significant relationship with sentence length. For the highest risk offenders specifically, for every one month increase in sentence length violent recidivism went down by 1%. Again this relationship is not significant. Performing the same analyses with the Static-99 the highest and lowest risk groups showed the greatest relationship with sexual recidivism (Malcom & Nunes, 2010). In this previous research a significant difference was observed for the relationship between sexual recidivism and incarceration when

comparing the lowest and highest risk groups by examining the 84% confidence intervals. Although no significance was found these results suggest that the relationship between incarceration and recidivism differs by risk level, however no significant effect of incarceration was found for any of the Static-2002R risk categories. However sample sizes were small making the comparison of groups limited to low, medium, and high risk. An examination of the effects of incarceration may be more accurately described if analyzed for all Static-2002R risk categories separately.

When examining the relationship between sentence length and recidivism the effect of treatment should be explored. Longer prison sentences may be offering offenders the opportunity to participate in treatment programs which may be confounding these results. Longer prison sentences may simply be offering more opportunity for treatment programs which may be reducing re-offence rates. Longer prison sentences may also simply be influencing criminals to be more careful in their offence behaviours in order to reduce the risk of being caught for their crimes.

For deterrence to be effective in traditional deterrence theory three interrelated factors are suggested to play a role; severity, certainty, celerity. The severity of the punishment must outweigh the benefits of performing the act (Bentham, 1948). The probability of detection must be high. Celerity means it must be a small time lapse between the act and the punishment. Perhaps severity of the punishment has an effect on recidivism dependent on the risk level of the offender.

The findings in the current study are counter to those found in the Nunes et al., (2007) study where no significant relationship was found after controlling for risk nor was an interaction found between incarceration and risk. The difference in results may be

described by the incorporation of longer follow-up times and longer sentence lengths. These differences may also be accounted for by the use of a more comprehensive measure of risk.

Future research should examine the relationship between sentence length and risk using a larger sample of offenders with a wide range of risk scores in order to determine more concretely the relationship between sentence length and risk level on violent recidivism. Future research should also examine these effects incorporating treatment as a possible predictor or covariate in these relationships.

Age as a moderator

A non-significant relationship was seen between incarceration and sexual recidivism, suggesting another variable may have been moderating this relationship. Given that risk moderated the relationship between sentence length and violent recidivism, and age has shown a relationship to risk, age was selected as a potential moderator. Age was not a significant predictor of sexual recidivism after assessing sentence length and risk as covariates. There was no significant moderation of age on the relationship between sentence length and sexual recidivism or risk and sexual recidivism.

For violent recidivism age was a significant predictor after assessing risk and sentence length as covariates. The relationship between age and violent recidivism was negative indicating that for every one year increase in age violent recidivism decreased by approximately 5%. No support was found for the age as a moderator hypothesis for violent recidivism as age had no moderating effect on the relationship between sentence length or risk scores and violent recidivism. The three way interactions between sentence length, age and risk were also performed for all analyses but showed no significant

interactions irrespective of the type of recidivism being examined and thus were not reported in the results.

Sexual Deviance and Criminality

The relationship between age and risk for sexual offenders has long been debated with some researchers supporting the linear relationship between age and risk (Barbaree, Langton & Blanchard, 2007) while others completely reject it (Harris & Rice, 2007). Other researchers have demonstrated a relationship between age and sexual deviance risk predictors and general criminality risk predictors (i.e., Barbaree et al., 2009). Consistent with research in this area results indicated that age at release was negatively correlated with criminality ratings and positively correlated with sexual deviance ratings although correlations were quite small. When examining the relationship between sexual deviance scores and sexual recidivism; sexual deviance scores did approach significance as a predictor of sexual recidivism with increases in sexual deviance increasing rates of sexual recidivism. However the predictive accuracy of sexual deviance scores decreased when other variables were added to the prediction model. This suggests that the predictive accuracy of sexual deviance may be accounted for by other variables. No support was shown for the sexual deviance as a moderator hypothesis.

Criminality showed no significant relationship with sexual recidivism when assessed with sexual deviance as a covariate and did not moderate the relationship between incarceration and sexual recidivism. When the moderation effects of sexual deviance and criminality on the relationship between age and recidivism were examined, only criminality moderated the effects of age on sexual recidivism, sexual deviance did not. Age on its own appears to have a negative relationship with sexual recidivism but the

interaction between age and criminality is positive. This interaction shows that the relationship between age and sexual recidivism differs as a function of criminality. Age showed a negative relationship with sexual recidivism but only for the group with the lowest criminality scores (a score of one) and as criminality scores increased the relationship between age and sexual recidivism decreased. These results are counter to previous research on the relationship between age and criminality. These results may be due to those within the low criminality group being of a younger age. Since criminality scores were based on static risk factors it is possible that the younger offenders in the sample may not be lower in criminality scores but may have simply not had ample time to have been caught for their crimes which would increase their criminality ratings. However these results are difficult to interpret.

Results for violent recidivism showed a different relationship than sexual recidivism. For violent recidivism sexual deviance was not a significant predictor even after controlling for criminality as a covariate. However, criminality was a significant predictor of violent recidivism and remained a significant predictor even after all the other variables and their interactions were assessed as covariates. No moderation effect was found for either sexual deviance or criminality scores on the relationship between either sentence length or age and violent recidivism.

Regardless of the relationship being examined criminality was clearly an important variable in relation to recidivism. Criminality moderated the relationship between age and sexual recidivism and approached significance when examined for violent recidivism. When the relationship between age and recidivism was examined by criminality score, for a one unit increase in age for those with criminality scores of one a

10% decrease in recidivism was observed. For the group with criminality rating scores of two a one unit increase in age showed a 4% decrease in sexual recidivism. These results indicated that criminality ratings moderated the relationship between age and sexual recidivism in that the lower the criminality total score the stronger the negative relationship with age.

Due to instances such as plea bargaining a crime that is sexual in nature may not appear so on a CPIC. According to Rice, Harris, Lang, and Cormier (2006) criminal record convictions for sexual offences underestimated the frequency and severity of sexual offences. Therefore the relationships observed for violent recidivism (which includes sexual) may be showing a more accurate relationship between the variables and sexual recidivism and may be applicable to sexual recidivism specifically. Future research on these relationships should include charges and convictions to provide a more accurate determination of sexual recidivism.

Limitations

Case load participants selected for review had to be crime free for a one year period or they were taken out of the analysis due to inadequate follow up time. In doing this the highest risk offenders may have been removed from the sample as they may have re-offended in the one year period post release. To address this problem all the analyses were performed on the new release and caseload files separately. The results produced were similar; suggesting the use of the combined sample was acceptable. As well splitting the sample would have resulted in smaller sample sizes and less power, making the relationships in question more difficult to analyze and interpret.

Due to the nature of the study risk was measured at the time of the index offence.

As such certain items were created by pre-existing variables in the data set (See Appendix E). Because Static-2002R scores were not coded in the original data set certain items were approximated from pre-existing variables. As a result small deviations from the coding rules were made. Specifically, for item 7 of the Static-2002R young, unrelated victims, the coding rules denote that in order to receive a score of one on this item the offender must have two or more victims under twelve and one of them must not be related. For this item a child under 13 was counted rather than a child under twelve. Item 5 (prior sex offences charges and convictions) used only convictions, although Static-2002R coding rules state that the sole use of convictions is acceptable, in a typical assessment setting this item scoring could be inflated if charges were also used in the scoring of this item. As well a certain degree of balance of decision making is required for certain items described in the Static-2002 coding manual (e.g., Was the crime sexually motivated? Was the victim a stranger?). Again, in a clinical setting where the scoring is case specific with supplemental information these items which are subject to the use of the “Balance of Probabilities standard” (Phenix, Doren, Helmus, Hanson & Thronton, 2008, p. 18) may have produced slightly different numbers. Certain deviations from the coding manual were also utilized in the scoring of the Static-99 (e.g., only convictions were used to code Item 5 prior sex offences), however the Static-99 was not used to determine risk in the investigation of the primary research questions for this project so a detailed description of these small deviations will not be thoroughly presented.

As well, missing data was a problem for this sample. Of the 570 offenders in the original sample 243 were excluded due to missing CPICS, French CPICS, and no sexual

offence in the index offence. The group excluded due to these reasons did not significantly differ from those contained in the final sample. However another 110 offenders from the original sample were excluded due to inadequate information available to score all items of the Static-2002R. Of the offenders who were excluded due to inadequate information to score the Static-2002R significant differences were found on age and Static-99 scores (although the two groups did not differ on SIR scores). The group that was excluded was slightly older and possibly had a slightly lower risk. As such, the remaining sample may not be completely generalizable to the entire sex offender population.

Conclusion

Although public opinion pushes for longer incarceration of sexual offenders sexual offence rates remain relatively low (Harris & Hanson, 2004). Incarceration is also more costly than supervision programs (Correctional Service Canada, 2011). This research shows greater insight into the relationship between risk and incarceration as well as shows support for the moderating effect of criminality on the relationship between age and sexual recidivism. Since incarceration is consistently showing a weak relationship with recidivism it should not be used as a deterrent for future criminal behavior.

Although incarceration does have retributive qualities it appears to be having little or no effect on either sexual or violent recidivism. As such, the push to maintain offenders in an institution for longer periods of time appears unwarranted. However, longer periods of incarceration may be offering offenders more opportunity for treatment. Evidence has been presented that validates the positive effects of treatment (e.g., Hanson et al. 2002; Hall 1995). Rather than mandating longer prison sentences for sexual offenders perhaps

the focus should be on treating offenders rather than simply placing them in institutions for longer periods of time.

Research in this area should explore the relationship between incarceration and risk incorporating other variables such as treatment. Research should also focus on the relationship between age, sexual deviance, and criminality ratings using more empirically studied and possibly more comprehensive measures of these constructs to more accurately determine the relationship between age and sexual offending which can in turn be used to provide more accurate determinants of the relationship between age and risk for sexual offenders specifically. A more thorough investigation into these relationships will allow for greater insight into how to cost effectively deal with sexual offenders in a way that both protects the public and reduces recidivism.

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Appendix A**STATIC-99 Items and scores**

Item	Score
1. Young	
Aged 25 or older	0
Aged 18-24.99	1
2. Ever lived with lover for at least two years?	
Yes	0
No	1
3. Index non-sexual violence - Any Convictions	
No	0
Yes	1
4. Prior non-sexual violence -Any Convictions	
No	0
Yes	1
5. Prior Sex Offences – Convictions	
None	0
1	1
2-3	2
4+	3
6. Prior sentencing dates (excluding index)	
3 or less	0

4 or more		1
7.	Any convictions for non-contact sex offences	
	No	0
	Yes	1
8.	Any Unrelated Victims	
	No	0
	Yes	1
9.	Any Stranger Victims	
	No	0
	Yes	1
10.	Any Male Victims	
	No	0
	Yes	1

Scores and Corresponding Risk Categories

0,1 **Low risk**

2,3 **Moderate-Low risk**

4,5 **Moderate-High risk**

6 plus **High risk**

Appendix B**Static-2002 Items and Scores**

Items	Scores
AGE	(18 to 34.9 = 2) – (35 to 39.9 = 1) – (40 to 59.9 = 0) – (60 or older = -2)
1. Age at Release:	
PERSISTENCE OF SEXUAL OFFENDING	(None = 0) – (1 = 1) – (2, 3 = 2) – (4 or more = 3)
2. Prior Sentencing Occasions for Sexual Offences:	
3. Any Juvenile Arrest for a Sexual Offence and Convicted as an Adult for a Separate Sexual Offence:	No arrest for a sexual offence prior to age 18 = 0 Arrest prior to age 18 and conviction after age 18 = 1
4. Rate of Sexual Offending:	Less than one sentencing occasion every 15 years = 0 One or more sentencing occasions every 15 years = 1
Less than one sentencing occasion every 15 years = 0	
Persistence of Sexual Offending SUBSCORE: (0 = 0) – (1 = 1) – (2, 3 = 2) – (4, 5 = 3)	
DEVIANT SEXUAL INTEREST	
5. Any Sentencing Occasion For Non-contact Sex Offences	(No = 0) – (Yes = 1)
6. Any Male Victim:	(No = 0) – (Yes = 1)
7. Young, Unrelated Victims:	Does not have two or more victims <

	12, one of them unrelated = 0 Does have two or more victims < 12 years, one must be unrelated = 1
RELATIONSHIP TO VICTIMS	
8. Any Unrelated Victim:	(No = 0) – (Yes = 1)
9. Any Stranger Victim:	(No = 0) – (Yes = 1)
GENERAL CRIMINALITY	
10. Any Prior Involvement with the Criminal Justice System:	(No = 0) – (Yes = 1)
11. Prior Sentencing Occasions For Anything:	(Less than 3 = 0) – (3-13 = 1) – (14+ = 2)
12. Any Community Supervision Violation:	(No = 0) - (Yes = 1)
13. Years Free Prior to Index Sex Offence:	More than 36 months free prior to committing the sexual offence that resulted in the index conviction AND more than 48 months free prior to index conviction = 0 Less than 36 months free prior to committing the sexual offence that resulted in the index conviction OR less than 48 months free prior to conviction for index sex offence = 1
14. Any Prior Non-sexual Violence Sentencing Occasion:	(No = 0) – (Yes = 1)

General Criminality SUBSCORE: (0 = 0) – (1, 2 = 1) – (3, 4 = 2) – (5, 6 = 3)

TOTAL 0-14

Translating Static-2002R scores into risk categories:

-2-2 = low risk

5-6 = moderate risk

9+ = high risk

3-4 = low-moderate risk

7-8 = moderate-high risk

Appendix C

General Criminality and Sexual Deviance Subscales

General Criminality Items

Item 10: Any prior involvement with the Criminal Justice System

Item 11: Prior sentencing occasions for anything

Item 12: Any community supervision violation

Item 13: Years free prior to index sex offence

Item 14: Any prior non-sexual violence sentencing occasions

Sexual Deviance Items

Item 5: Any sentencing occasion for non-contact sex offences

Item 6: Any male victim

Item 7: Young, unrelated victims

Appendix D**Sex Offender Recidivism Coding Form**

SUBJECT ### Subject number

CASE ### Case number (Transcribe from Case)

BYEAR ##### Birth year (Transcribe from Q4yy)

CODER # Coder/data enterer Renee=1 Kayla=2 Kelly=3

ENTDAT <dd/mm/yyyy> Date (dd/mm/yyyy) of coding/data entry

CPIC1 # Is a CPIC available to score the items for this offender?

No=0 Yes=1

(If there is no CPIC available, do NOT code the remaining items for this subject.)

FRENCH # Is the CPIC in French? No=0 Yes=1

(If yes, do NOT code the remaining items for this subject.)

SEXIND # Is there a sex offence in the index offence(s)?

No=0 Yes=1 (Score using RSODATE, Q50, Q48, Q49, Q53, RELDATE, and CPIC info to identify index offences or index offence cluster.)

(If there is no sex offence in the index, do NOT code the remaining items for this subject.)

SEXINDAT <dd/mm/yyyy> Date (dd/mm/yyyy) of conviction/sentencing for index sex offence.

(Even if this was part of a cluster that started with an earlier nonsex offence, enter here the

date of the first SEX offence in the index cluster.)

INDAT <dd/mm/yyyy> Date (dd/mm/yyyy) of first conviction/sentencing
(sexual or nonsexual) in the index sex offence cluster.

IRELD <dd/mm/yyyy> Index offence release Date (dd/mm/yyyy)

(If RELDATE in dataset seems correct, transcribe it.

If RELDATE seems incorrect, estimate from CPIC
and other dataset info; e.g., 2/3 of aggregate
sentence.)

STATIC 99-2002

S993 # Index nonsexual violence Any convictions (Static 99 Item 3)?
No=0 Yes=1

S994 # Prior nonsexual violence Any convictions (Static 99 Item 4)?
No=0 Yes=1

S995 ### Number of prior sex convictions (Static 99 Item 5)

S996 ### Number of prior sentencing dates (Static 99 Item 6)

STATIC 2002

S022 ### Number of prior sentencing occasions for sex offences
(Static 2002 Item 2)

S024 # Rate of sexual offending (Static 2002 Item 4)
Less than one sentencing occasion every 15 years = 0
One or more sentencing occasions every 15 years = 1

S0211 ### Number of prior sentencing occasions for anything
(Static 2002 Item 11)

S0212 # Any community supervision failure (Static 2002 Item 12)?

No=0 Yes=1

S0213 # Years free prior to index sex offence (Static 2002 Item 13)

More than 36 months free prior to committing the sexual
offence that resulted in the index conviction AND

more than 48 months free prior to index conviction = 0

Less than 36 months free prior to committing the sexual
offence that resulted in the index conviction OR

less than 48 months free prior to conviction for

index sex offence = 1

(Use Q48 in dataset for date index sex offence was committed;

if Q48 is missing, use Q49[charge date]; and if Q49 is missing,

use RSODATE and Q50 [conviction date]. Use RSODATE and Q50

for date of index sex offence conviction date.

If a release date for most recent prior incarceration is not given

in CPIC, estimate release date as 2/3 of aggregate sentence.)

S0214 # Any prior non-sexual violence sentencing occasion

(Static 2002 Item 14)? No=0 Yes=1

CURRENT AND PRIOR CONVICTIONS

(Code this section based only the official conviction name. For example,

Assault would always be coded only as a non-sexual violent conviction.

Otherwise, use Static-2002 rules to classify nature of offences.)

ISEX ### Number of index sex convictions

IViol ### Number of index non-sexual violent convictions

ICrim ### Number of index non-sexual non-violent convictions

(Do NOT include breaches)

IBreach ### Number of index breaches of conditional release, bail, probation, etc. (e.g., revocation or violation of parole, statutory release, or mandatory supervision; fail to appear or comply; escape or unlawfully at large; breach of probation) (If the breach is listed in the convictions section of CPIC, include it here.)

PSEX ### Number of prior sex convictions

SEX1DAT <dd/mm/yyyy> Date (dd/mm/yyyy) of first sex offence conviction on CPIC.

PViol ### Number of prior non-sexual violent convictions

Viol1DAT <dd/mm/yyyy> Date (dd/mm/yyyy) of first non-sexual violent conviction on CPIC.

PCrim ### Number of prior non-sexual non-violent convictions (Do NOT include breaches)

CRIM1DAT <dd/mm/yyyy> Date (dd/mm/yyyy) of first non-sexual non-violent conviction on CPIC.

(Do NOT include breaches)

PBreach ### Number of prior breaches.

RECIDIVISM

(For the recidivism items below: code only offences subsequent

to the index offence as recidivism; e.g., after RELDATE.

Code this section based only the official conviction name. For example,

Assault would always be coded only as non-sexual violent recidivism.

Otherwise, use Static-2002 rules to classify nature of offences.)

RSEXCO # Any sex recidivism convictions? No=0 Yes=1

RSEXCON ### Number of sex recidivism convictions

RSEXCOD <dd/mm/yyyy> Date (dd/mm/yyyy) of 1st sex recidivism conviction

RSEXINC ### Number of separate and independent incarceration sentences

(i.e., separated by a period of non-incarceration) for any non-sex offences between index release date and date of 1st sex recidivism conviction (or, if no sex recidivism, until date of death or when CPIC was pulled; whichever is earliest).

(Only count sentences involving prison time. But do not count ID time listed with a fine as prison time. When a fine is the sentence for an offence, prison time can be assigned in the event the offender does not pay the fine.

But if the fine is paid, this time is not served. This is

indicated on a CPIC as, for example, \$50 ID 10 days.)

RS1SENTD <dd/mm/yyyy> Sentencing Date (dd/mm/yyyy) for 1st period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC.

RS1SENT #####.## Aggregate sentence length (months) for 1st period of incarceration between index release date and date of 1st

sex recidivism conviction, death, or CPIC.

(If more than one consecutive sentence, sum the time.

If it is unclear whether multiple sentences are

consecutive or concurrent, assume they are concurrent.)

RS1RELDY # Is the exact Release date reported in CPIC for the 1st period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC?

No=0 Yes=1

RS1RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for the 1st period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC
(Leave blank if date not reported in CPIC)

RS2SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 2nd period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC

RS2SENT #####.## Aggregate sentence length (months) for 2nd period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC

RS2RELDY # Is the exact Release date reported in CPIC for the 2nd period of incarceration between index release date and date of 1st sex recidivism conviction, death, or CPIC?

No=0 Yes=1

RS2RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for the

2nd period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC

RS3SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 3rd period of
incarceration between index release
date and date of 1st sex recidivism
conviction, death, or CPIC

RS3SENT #####.## Aggregate sentence length (months) for 3rd period of
incarceration between index release date and date of
1st sex recidivism conviction, death, or CPIC

RS3RELDY # Is the exact Release date reported in CPIC for the
3rd period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC?
No=0 Yes=1

RS3RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for the
3rd period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC

RS4SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 4th period of
incarceration between index release date and date
of 1st sex recidivism conviction, death, or CPIC

RS4SENT #####.## Aggregate sentence length (months) for 4th period of
incarceration between index release date and date of
1st sex recidivism conviction, death, or CPIC

RS4RELDY # Is the exact Release date reported in CPIC for the

4th period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC?

No=0 Yes=1

RS4RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for
4th period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC

RS5SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 5th period of
incarceration between index release date
and date of 1st sex recidivism conviction

RS5SENT #####.## Aggregate sentence length (months) for 5th period of
incarceration between index release date and date of
1st sex recidivism conviction, death, or CPIC

RS5RELDY # Is the exact Release date reported in CPIC for the
5th period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC?
No=0 Yes=1

RS5RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for
5th period of incarceration between index release date
and date of 1st sex recidivism conviction, death, or CPIC

RVIOLCO # Any non-sexual violent recidivism convictions?
No=0 Yes=1

RVIOLCON ### Number of non-sexual violent recidivism convictions

RVIOLCOD <dd/mm/yyyy> Date (dd/mm/yyyy) of 1st non-sexual violent

recidivism conviction

RVIOINC ### Number of separate incarceration sentences for sex offences, non-sex non-violent offences, or breaches between index release date and date of 1st non-sexual violent recidivism conviction, death, or CPIC

RV1SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 1st period of incarceration between index release date and date of 1st non-sexual violent recidivism conviction, death, or CPIC

RV1SENT #####.## Aggregate sentence length (months) for 1st period of incarceration between index release date and date of 1st non-sexual violent recidivism conviction, death, or CPIC

RV1RELDY # Is the exact Release date reported in CPIC for the 1st period of incarceration between index release date and date of 1st non-sexual violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RV1RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for 1st period of incarceration between index release date and date of 1st non-sexual violent recidivism conviction, death, or CPIC

RV2SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 2nd period of incarceration between index release date and date of 1st non-sexual violent recidivism

conviction, death, or CPIC

RV2SENT #####.## Aggregate sentence length (months) for 2nd period of
incarceration between index release date and
date of 1st non-sexual violent recidivism
conviction, death, or CPIC

RV2RELDY # Is the exact Release date reported in CPIC for the 2nd
period of incarceration between index release date and date
1st non-sexual violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RV2RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for
2nd period of incarceration between index release date and date
of 1st non-sexual violent recidivism conviction, death, or CPIC

RV3SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 3rd period of
incarceration between index release date and date of 1st
non-sexual violent recidivism conviction, death, or CPIC

RV3SENT #####.## Aggregate sentence length (months) for 3rd period of
incarceration between index release date and
date of 1st non-sexual violent recidivism
conviction, death, or CPIC

RV3RELDY # Is the exact Release date reported in CPIC for the 3rd
period of incarceration between index release date and date
1st non-sexual violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RV3RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for
3rd period of incarceration between index release date and date
of 1st non-sexual violent recidivism conviction, death, or CPIC

RV4SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 4th period of
incarceration between index release date and date of 1st
non-sexual violent recidivism conviction, death, or CPIC

RV4SENT #####.## Aggregate sentence length (months) for 4th period
of incarceration between index release date and
date of 1st non-sexual violent recidivism
conviction, death, or CPIC

RV4RELDY # Is the exact Release date reported in CPIC for the 4th
period of incarceration between index release date and date
1st non-sexual violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RV4RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC
for the 4th period of incarceration between
index release date and date of 1st non-sexual
violent recidivism conviction, death, or CPIC

RV5SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 5th period
incarceration between index release date and date
of 1st non-sexual violent recidivism
conviction, death, or CPIC

RV5SENT #####.## Aggregate sentence length (months) for 5th period of

incarceration between index release date and date of 1st

non-sexual violent recidivism conviction, death, or CPIC

RV5RELDY # Is the exact Release date reported in CPIC for the 5th
period of incarceration between index release date and date
1st non-sexual violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RV5RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for
the 5th period of incarceration between index release date and date
of 1st non-sexual violent recidivism conviction, death, or CPIC

RCRIMCO # Any non-sexual non-violent recidivism convictions
(including breaches)? No=0 Yes=1

RCRIMCON ### Number of non-sexual non-violent recidivism convictions

RCRIMCOD <dd/mm/yyyy> Date (dd/mm/yyyy) of 1st non-sexual on-violent
recidivism conviction

RCIOINC ### Number of separate incarceration sentences
(i.e., separate sentencing occasions) for sexual or
non-sexual violent offences between index release date and
date of 1st non-sexual non-violent recidivism conviction,
death, or CPIC?

RC1SENTD <dd/mm/yyyy> Sentencing date for 1st period of
incarceration between index release date
and date of 1st non-sexual non-violent recidivism
conviction, death, or CPIC

RC1SENT #####.## Aggregate sentence length (months) for 1st period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC

RC1RELDY # Is the exact Release date reported in CPIC for the 1st period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC?
No=0 Yes=1

RC1RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for 1st period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC
(Leave blank if date not reported in CPIC.)

RC2SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 2nd period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC

RC2SENT #####.## Aggregate sentence length (months) for 2nd period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC

RC2RELDY # Is the exact Release date reported in CPIC for the

2nd period of incarceration between index release date
and date of 1st non-sexual non-violent recidivism
conviction, death, or CPIC?

No=0 Yes=1

RC2RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in
CPIC for the 2nd period of incarceration
between index release date and date of 1st
non-sexual non-violent recidivism
conviction, death, or CPIC

RC3SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 3rd period of
incarceration between index release date and date
of 1st non-sexual non-violent recidivism
conviction, death, or CPIC

RC3SENT #####.## Aggregate sentence length (months) for 3rd period of
incarceration between index release date and
date of 1st non-sexual non-violent recidivism
conviction, death, or CPIC

RC3RELDY # Is the exact Release date reported in CPIC for the
3rd period of incarceration between index release date
and date of 1st non-sexual non-violent recidivism
conviction, death, or CPIC?

No=0 Yes=1

RC3RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in

CPIC for the 3rd period of incarceration

between index release date and date of 1st

non-sexual non-violent recidivism

conviction, death, or CPIC

RC4SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 4th period of

incarceration between index release date and date

of 1st non-sexual non-violent recidivism

conviction, death, or CPIC

RC4SENT #####.## Aggregate sentence length (months) for 4th period of

incarceration between index release date and date of 1st

non-sexual non-violent recidivism conviction, death, or CPIC

RC4RELDY # Is the exact Release date reported in CPIC for the

4th period of incarceration between index release date

and date of 1st non-sexual non-violent recidivism

conviction, death, or CPIC? No=0 Yes=1

RC4RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC

for the 4th period of incarceration between index

release date and date of 1st non-sexual non-violent

recidivism conviction, death, or CPIC

RC5SENTD <dd/mm/yyyy> Sentencing date (dd/mm/yyyy) for 5th period

of incarceration between index release date and

date of 1st non-sexual non-violent recidivism

conviction, death, or CPIC

RC5SENT #####.## Aggregate sentence length (months) for 5th period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC

RC5RELDY # Is the exact Release date reported in CPIC for the 5th period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC? No=0 Yes=1

RC5RELD <dd/mm/yyyy> Release date (dd/mm/yyyy) reported in CPIC for the 5th period of incarceration between index release date and date of 1st non-sexual non-violent recidivism conviction, death, or CPIC

RBREACO # Any post-index offence convictions for breaches? No=0 Yes=1

RBREACON ### Number of post-index offence breach convictions

RBREACOD <dd/mm/yyyy> Date (dd/mm/yyyy) of 1st post-index breach conviction

DEADDAT <dd/mm/yyyy> If deceased, date (dd/mm/yyyy) of death (from CPIC)

ENDDAT <dd/mm/yyyy> Date (dd/mm/yyyy) of CPIC (date at top or bottom of CPIC record)

NOTES Make note of any issues or problems with coding for this subject

Appendix E

**STATIC-99 AND STATIC-2002 ITEMS COMPUTED DIRECTLY FROM
VARIABLES IN DATASET (Motiuk & Porporino, 1993)**

	STATIC-99	VARIABLE
	Young	IRELD – Q4
	Ever lived with	Q19
	Any convictions for non-contact sex offences	Q170, 173, 176
	Any unrelated victims	Q169, 172, 175
	Any stranger victims	Q169, 172, 175
	Any male victims	Q168, 171, 174
	STATIC-2002	VARIABLE
	Age	IRELD – Q4
	Any juvenile arrest for a sexual offence and convicted as an adult for a separate sexual offence	Q45b, 46a; Q50 – Q4
	Any sentencing occasions for non-contact sex offences	Q170, 173, 176
	Any male victims	Q168, 171, 174
	Young, unrelated victims	Approximate from Q169
	Any unrelated victim	Q169, 172, 175
	Any stranger victims	Q169, 172, 175
	Any prior involvement with the criminal justice system	Approximate from offence, arrest, & sentence variables